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THIS WEEK'S NEWS

AN APPRECIATION of Mr. C. H. James, R.A., F.R.I.B.A., who died last Sunday, has been written by Mr. Arthur Kenyon. p. 264

SHEFFIELD UNIVERSITY have instituted an architectural competition for the building, design and layout of various proposed extensions. The winner will receive £5,000, the author of the second design, £3,000, and the third, £2,000. p. 264

WHAT IS BELIEVED to be the largest prestressed concrete railway bridge of its kind in the world, the new bridge across the River Don at Rotherham, is illustrated on p. 281

THE NUMBER of permanent houses completed in Great Britain during 1952 was 239,922, compared with 194,831 in 1951, according to the latest housing progress reports. p. 283

LEADERS of the unions affiliated to the N.F.B.T.O. are to hold a ballot which will offer a choice of referring the recently rejected wage claim to arbitration or taking strike action. p. 283

THE CORPORATION OF BIRMINGHAM are to explore the possibilities of building houses by direct labour. p. 284

THE FINAL ARTICLE showing the main variations between the new London building by-laws and those of 1937 appears on p. 286

THE BELIEF that the building industry would succeed in keeping costs stable and, possibly, find means of reducing them during the next year or two, was expressed by Mr. K. L. G. Warne, chairman of the National Council of the Federation of Master Builders, at Cardiff on February 6. p. 288

HOUSING RECORDS AND HOPES

THE latest quarterly Housing Return for Great Britain—published last week—carries the story of the post-war housing programme down to the end of 1952. It is of particular interest because 1952 was the first complete year under the new Government. The Government may indeed congratulate themselves on the fact that during that year 239,922 new permanent houses were completed, compared with 194,831 in the previous year. The year 1952 may in fact be regarded as the best of all the post-war years, the previous record being the 227,616 permanent houses built in 1948, though in that year there were still, in addition, some temporary prefabs. going up and there was also a good deal of conversion and adaptation and war-damage repair.

Last year's excellent achievement will naturally encourage the hope that during the present year the Government will be able to realise their declared aim of 300,000 houses. Everybody, irrespective of party, who has the welfare of the people of this country at heart must wish that this aim will be achieved this year and maintained in following years. 300,000 houses annually will be none too many; Mr. Macmillan has recently pointed out that it will take 25 to 30 years to carry through the rehousing programme and then we shall have to start all over again. The only question indeed is whether Mr. Macmillan's estimate may not be too optimistic. It was recently estimated, for instance, than even if the current rate of house-building in St. Helens could be increased by 50 per cent. and the higher rate maintained over the next 20 years, the housing position in the town at the end of the period would be no better than it is to-day. The sooner, therefore, that we can reach the figure of 300,000 houses a year the better.

What are the prospects? Some considerable encouragement may be derived from the fact that at the end of 1952 280,258 houses were in various stages of construction and that tenders had been approved for a further 116,422, the construction of which had not then begun. Both these figures represent, it is believed, further post-war records. It must, of course, be borne in mind that it is possible to have too many houses under construction at any one time, since greater output may be achieved by concentrating labour and materials on fewer projects. In fact, at one time since the war the building programme did get into that state, and the Labour Government found it desirable to cut down on starting new work in order to get existing work completed. No doubt the present Government will bear these lessons in mind.

Another source of encouragement lies in the fact that, generally speaking, the output of building materials in 1952 was greater than in 1951. This increase was particularly marked in the case of bricks, the production during 1952 amounting to 6,622 millions compared with 6,080 millions in the previous year. This figure, however, is substantially below the pre-war production and this fact, coupled with the reduction of stocks in 1952 and the complaints as to brick shortages, suggests that there may be some difficulty in meeting the building industry's needs. This leads us to the question whether, as has been suggested in certain quarters, the Government's housing records have been achieved at the expense of factory building and other essential forms of construction. This question is by no means easy to answer; the only other types of building for which statistics are available are those for factories and educational building, and moreover the available statistics must be applied with caution. So far as schools are concerned, however, the published figures indicate that 1952 was a better year than 1951. During the first ten months of 1952—no later figures are yet available

—contracts were completed to the value of over £38 million as compared with rather less than £35 million during the whole of the preceding year. Figures based on value must, of course, be used with extreme caution because of the influence of rising costs, but in this case the trend appears to be confirmed by the fact that there was also an increase in the number of "new places provided" in maintained and assisted primary and secondary schools.

The position with regard to factory building is less certain. The Board of Trade issues statistics of schemes with an area of 5,000 sq. ft. or over for new factories or extensions to existing factories. Figures are now available down to October last, and these suggest that the final total for 1952 will be markedly less than that for 1951. On the other hand, a glance at the statistics of factories in course of building shows that, although the value of such work in 1952 will almost certainly be much less than in 1951, the real drop occurred during the last quarter of 1951, which suggests that the previous Government have some responsibility in the matter. We mention this fact not in any partisan spirit, but merely as indicating the probability that the present Government has not pursued a deliberate policy of cutting essential factory building in order to release labour and materials for housing. Equally, however, the reduction in the amount of factory building, whatever the cause, may well have helped the house-building programme.

This necessarily brief review of the house-building position in relation to other forms of building and the availability of materials suggests that we may look to the future with some confidence. Difficulties there may well be, and wild optimism would certainly be out of place, but a most encouraging start has been made and there are several favourable omens for the future.

FIRST-AID TO HISTORIC BUILDINGS

THERE are times when the Mother of Parliaments embarrasses us with displays more traditionally associated with Billingsgate than Westminster. There are others in which she re-enlists our affection by seeming to realise the charm of growing old gracefully among treasured possessions of which she belatedly appreciates the artistic and cultural value.

In her rôle of housewife, as opposed to fishwife, that appreciation may well take the form of "making do and mending"—a process familiar to this generation—with an eye as much to the realisation and replacement value of her possessions as to their sentimental associations. Unanimity is apt to show itself in both Houses on such occasions—as recently, when the museums, badgered into effecting cheese-paring economies, looked like flouncing to their doors to slam them in the face of the public. Some welcome and sensible things were said in the Commons then about a patrimony we tend to take for granted until it is too late. The volume of opinion, transcending mere party politics, was an indication of how acutely such losses would ultimately be felt by the public and how carefully horns must be pulled in during "thin times."

A new example are the proposals to help preserve our historic houses, arising out of the discussion of a private Member's motion in the House of Commons on February 6. Though speakers on both sides deplored the inadequacy of the quarter of a million pounds, said by the Minister of Works to be available for their preservation, as falling far short of fulfilment of the Gowers report's recommendations (which include the setting up of a statutory body to select houses for treatment, as well as the lightening of tax burdens on the owner-occupiers of those on public view), at least attention has been called to the problem, which is one of cumulative neglect as much as the stringency of the times, and action is foreshadowed in the provisions of the coming Budget.

Historical importance is not always synonymous with architectural merit, and there will be conflicting claims on the money available. But there is a sufficiency of competent architectural and archæological advice to hand, and surely we can count on at least as valid and practicable a list of "protected monuments" as was, for instance, compiled during the war for the battle-torn countries of Europe, and implemented by allied teams working as sub-commissions of Military Government under direct authority of the commander-in-chief in each theatre of war. The technique they practised seems eminently applicable to this problem, and facilities far better than the enforced improvisations then called for are available to us.

Their first-aid work, undertaken for the good reasons, first, of a civilised conqueror's obligation to "tidy-up" after himself and even after the enemy, and secondly to rehabilitate countries relying much on their tourist and student traffic, was given considerable priority and carried out with the sense of purpose and dispatch of a military operation. It is ironical to think that at this late stage, and in our own country, there should be any question of granting the minimum of help in the effects of neglect no less damaging than the casualties of war on a patrimony no less precious. But better late than never, and perhaps not too late, even if too little.

We can learn at least one lesson from what was done in occupied Europe by the liberating forces, necessarily at speed and subservient always to prior claims on material and labour—considerations which still apply. The terms of reference of the specialist officers to whom the work was delegated were strictly *first-aid*—the dressing of "wounds," fortifying transfusions and "injections" and, sometimes, the ruthless cutting-away of what was irretrievably shattered, to continue the military-surgical analogy, as opposed to the "plastic surgery" and rehabilitation in the form of *restoration* which was to come later as the charge and responsibility of the nationals of countries concerned—in better and calmer times.

The result was, inevitably, some temporary patching and disfigurement in the eyes of the layman; but it saved many architectural treasures. Moreover, it could often be contrived as the basis for ultimate restoration, if not to a facsimile of their original appearance at least so as to continue to provide the material for comparative study and research. The layman tends to set too much store by restoration in the sense of "mummification," in superficial visual terms. The technician and art-historian is content with something short of this, which preserves the vital essence and characteristics of a period or style.

In laying out their assets, no doubt the authorities concerned and their advisers will not overlook the possibilities of this technique of first-aid repair—a constructive treatment designed, literally, to stop the rot. As the Minister of Works said, the decay and demolition of our architectural master-pieces are assuming the proportions of a tragedy. The general proposals of the Gowers report must, it seems, await better times, but here meantime is an opportunity to put into effect a proven means of halting the progressive whittling away of a heritage we cannot and must not lose, whether on cultural or economic grounds. It should not be necessary to add that this is a practical problem in which the architect and craftsman are as essential team members as the antiquarian.

NOTES & NEWS

CORONATION DECORATIONS

A SCHEME of Coronation decorations for Oxford-street, from Marble Arch to Oxford-circus, has been prepared by Mr. Sergei Kadleigh, A.R.I.B.A., in association with Sir Hugh Casson, F.R.I.B.A., for St. Marylebone B.C., to which Sir Hugh is consultant architect.

Two sets of standards will be erected in groups along both sides of the roadway; one will carry a colour scheme of scarlet and gold, the other will bear the arms of the borough and of the City of Westminster. A third set of standards has been designed for that part of the roadway surrounding Marble Arch along which the Coronation procession will pass on emerging from Hyde Park.

A tentative proposal is also under consideration for suspending two replicas of the royal coat of arms across the open space of Oxford-circus and a third replica across Great Cumberland-place at the opposite end of Oxford-street. The estimated cost of the whole scheme is £12,000.

TRAVELLING EXHIBITION

AN EXHIBITION entitled "Home and Surroundings," will be opened by Mr. Harold Macmillan, Minister of Housing and Local Government, at the Royal Institute of British Architects on February 18.

This is the first in a series of travelling exhibitions to be arranged under the general title "The Architect and You," and has been specially designed for touring the country. It illustrates the architect's contribution to the problems of siting, layout, and landscaping, and will be on view until February 28 (Monday—Friday, 10 a.m.—7 p.m.: Saturdays, 10 a.m.—5 p.m.) before commencing its tour.

An exhibition of photographs, drawings and models showing post-war building and planning in the Netherlands will take place also at the R.I.B.A. from February 25 to March 28, and at the same times daily.

R.I.B.A. AWARD

MR. E. MAXWELL FRY, F.R.I.B.A., has been awarded the R.I.B.A. Distinction in Town Planning.

TITE AND SOANE PRIZES, 1953

THE Board of Architectural Education announces that the closing date for the submission of forms of application for the R.I.B.A. Tite Prize for 1953, is March 19 next.

The Tite Prize, a certificate and the sum of £100, for the study of the architecture of the Italian Renaissance, is confined to probationers and elected students of the R.I.B.A. and elected students of Dominion Allied Societies who have passed the R.I.B.A. Intermediate or equivalent examination, or have reached the required standard.

The Soane Medallion and the sum of £120 is confined to members of the R.I.B.A. and of the Allied Societies overseas and elected students of the R.I.B.A. and of the Allied Societies overseas, who have passed the R.I.B.A. Final (Part I and II), or attained an equivalent standard. March 23 is the closing date for applications.

The *en loge* competitions will, in both cases, be held on April 22, next. Application forms from the R.I.B.A., 66, Portland-place, London, W.1.

PHOTOGRAPHY AT THE A.A.

THE ANNUAL EXHIBITION of photographs by members of the Architectural Association which is now being held at 36, Bedford-square, is, generally speaking, not of quite the same standard as last year. There are a number of first-rate photographs, however, in the exhibition, but these appear to have been taken by a handful of members who consistently turn out good work. As far as one can remember, there appear to be quite a few members who have submitted work this year who were not represented last year, but in spite of this, there do not seem to be so many photographs on show and this is rather disappointing. There must be many more members who have taken photographs worthy of inclusion in an exhibition and one wonders if the fault lies with the lack of advance publicity given to this annual event. The exhibition will remain on view until Friday, February 20.

AN ARCHITECT'S DRAWINGS

MR. AND MRS. ARTHUR KENYON'S annual sherry party, on Tuesday night, was a bright gleam in a wintry week not only by reason of cheerful company, but of the many delightful drawings on view of sunlit lands made by Mr. Kenyon over the years—Austria, Spain, Portugal, the Balearics and Corsica among them. Many of these drawings, with descriptive accounts, have appeared in our columns over the years, for Mr. and Mrs. Kenyon are inveterate explorers of places off the tourists' beaten track. The travel agencies can now expect a minor boom!

COST OF WHITEHALL OFFICES

THE Civil Appropriation Accounts, 1951–52, published on Tuesday (H.M.S.O., price 14s.), show that rises in the cost of labour and materials and other factors have caused substantial increases in estimates for public buildings. By March last the total estimate for the new Government offices in Whitehall Gardens had risen from the original £3,500,000 to £6 m.

HOSPITAL EXTENSION

PROPOSALS for a new building as an extension to St. Bartholomew's Hospital, London, to contain 120 beds and an operating theatre, were approved at a recent meeting of the Court of Common Council. The sites involved are 48 to 57, Little Britain, part of 55 and 56, West Smithfield, and 63 to 72 and 74 to 83, Bartholomew Close.

Sketch plans for this proposed extension have been prepared by Adams, Holden and Pearson, FF./AA.R.I.B.A., of Gordon-square, W.C.1.

STOCK EXCHANGE GALLERY

THE STOCK EXCHANGE is to have a public gallery, designed by Mr. G. J. Buckingham, F.R.I.B.A. The necessary building licences have been obtained and it is hoped that work will begin shortly. As the construction of the gallery may take about six months it is unlikely to be ready by the Coronation. The design

"THE QUEEN'S BEASTS," intended for the exterior of the Abbey's Coronation Annexe, are now arriving at completion in the Hammersmith studio of Mr. James Woodford, R.A., who is seen (left) at work on "The Lion of England." In the other photograph is "The White Lion of Mortimer."

includes a glass front for the gallery, which will allow standing room for approximately 30 people.

ARCHITECT'S ESTATE

Mr. Lawton Robert Ford, F.S.A., F.R.I.B.A., of Broadchalke, near Salisbury, left estate of £50,231.

COMING EVENTS

FRIDAY, FEBRUARY 13

National Society.—20th annual exhibition of painting, drawing, engraving and sculpture. Royal Institute Galleries, 195, Piccadilly, W.1. 10 a.m.–5 p.m. Continuing until March 4.

SATURDAY, FEBRUARY 14

Faculty of Architects and Surveyors and Faculty of Surveyors of England (Bristol and District Branch).—Extraordinary general meeting at which the president will be present. Pump Room, Bath, Somerset. 2.30 p.m.

MONDAY, FEBRUARY 16

R.I.C.S.—"The Valuation of Plant and Machinery for Rating Purposes," by Mr. Arthur Lockwood, M.B.E., F.R.I.C.S. 12, Great George-street, S.W.1. 5.30 p.m.

TUESDAY, FEBRUARY 17

Housing Centre.—"Housing Aspects of the Census," by Miss Mary P. Newton, M.A. 13, Suffolk-street, Haymarket, S.W.1. 6 p.m.

WEDNESDAY, FEBRUARY 18

R.I.B.A.—Opening by Mr. Harold Macmillan Minister of Housing and Local Government, of travelling exhibition entitled "Home and Surroundings." 66, Portland-place, W.1. (Monday to Friday, 10 a.m.–7 p.m.; Saturdays, 10 a.m.–5 p.m.) Continuing open until February 28.

Royal Society of Arts.—"British Inland Waterways To-day and To-morrow," by Mr. Robert Aickman, R.S.A., John Adam-street, Adelphi, W.C.2. 2.30 p.m.

Reinforced Concrete Association.—Open forum on problems of the reinforced concrete industry. 11 Upper Belgrave-street, S.W.1. 6 p.m.

Institution of Sanitary Engineers.—"The Law Relating to River Pollution Prevention," by Mr. G. E. Walker. Caxton Hall, Westminster. 6 p.m.

Institute of Patentees.—Modern Inventions and New Ideas Exhibition. Central Hall, Westminster, S.W.1. 11 a.m. to 9.30 p.m. daily. Continuing until February 28.

Accident Prevention Group for Building and Engineering Contractors.—Inaugural meeting of the Group at which Sir George Barnett will speak. Safety, Health and Welfare Museum, Horseferry-road, S.W.1. 2.30 p.m.

THURSDAY, FEBRUARY 19

Town and Country Planning Association.—Discussion on "Outdoor Advertising in this Country is Excessive and Bad." 28, King-street, W.C.2. 6.30 p.m.

Royal Institution of Great Britain.—"Old London Bridge: Engineering and Architectural Aspects," by Major Gordon Home. 21, Albemarle-street, W.1. 5.15 p.m.

Society of Chemical Industry.—"The Stability of Asphalt Mixtures as Affected by Aggregate Type," by Dr. B. H. Knight. Building Centre, Store-street, W.C.1. 6 p.m.

Industrial Welfare Society.—One-day course on "Manual Lifting and Handling." Robert Hyde House, Bryanston-square, W.1. 9.30 a.m.

FRIDAY, FEBRUARY 20

R.I.C.S. (Surrey County Branch).—"Development Plan for Croydon," by Mr. C. E. Stafford, A.R.I.C.S. Town Hall, Croydon. 6.30 p.m.

Institute of Housing (London Area Branch).—Annual dinner. Quadrant Restaurant, Regent-street, W.1. 7.30 p.m.

FROM "THE BUILDER" OF 1853

Saturday, February 12, 1853

Cost of pipe-drains.—I beg to hand you the particulars of tenders sent in for the supplying and laying down of 900 ft. of 9-in. glazed pipes, at Plasket School, East Ham:—

	£	s.		£	s.
Stiles	136	0	Toole	65	5
Hier	112	0	Rogers	65	0
Blyth	95	10	Bell	64	0
Wood	94	0	Wilson	63	10
Myers	81	17	Cook	62	19
Viger	70	0	Brown	58	0
Parrett	69	4	Hill	58	0
Scarbore	66	0	Green	57	7

OBITUARY

C. H. JAMES, R.A., F.R.I.B.A.

We record with deep regret the death of Mr. C. H. James, R.A., F.R.I.B.A., of the firm of James and Bywaters, of 5, Bloomsbury-street, W.C.1, which took place on Sunday evening after a short illness. He was 59.

Charles Holloway James, born in Gloucester in 1893, was educated at Rich's School and Taunton School, and articled to Walter B. Wood, of Gloucester. He was an assistant in Lutyens' office and afterwards with Barry Parker and Raymond Unwin at the time they were planning Letchworth Garden city. James served in the 1914–18 war, in which he lost a leg, and afterwards set up in practice, first with H. R. Thompson then with C. M. Hennell designing Swanpool Garden Suburb, Hull; various housing schemes at Welwyn Garden City; another at Plymouth for Lady Astor Housing Trust; and a number of large private houses at Hampstead Garden Suburb. Later he was a winner of important competitions, including Norwich (1932) and Slough Civic Centre (1934), both in partnership with S. Rowland Pierce, and Hertford County Hall (with James Bywaters). In the post-1945 period he had designed much municipal housing at Hampstead (where his Wells House won both a Ministry of Housing medal and the London Architecture Medal, 1949) and on the Notre Dame estate at Clapham. Recently he had completed (in partnership with Mr. Bywaters, Mr. B. J. Saunders and Mr. D. le M. Brock) the Foster's bottling store on the Great West-road. A personal work was the restoration of Goldsmiths' Hall in Foster-lane for the Worshipful Company, of which he was a Freeman. He was also architect to All Souls' College, Oxford.

C. H. James occupied a distinguished place in the architectural world. He was elected R.A. in 1946 (A.R.A. in 1937), and was vice-President in 1947–48 of the R.I.B.A., whose Distinction in Town Planning he held. He had been twice vice-President of the Architectural Association, and was a silver medallist at the Paris Exhibition, 1925. With F. R. Yerbury he published "The Modern Small English House" and "Small Houses for the Community"; and with S. R. Pierce he produced "A Plan for Norwich" and "Royal Leamington Spa."

Before his injury in the 1914–18 war, James was a keen cricketer, and only recently he had been elected, to his undisguised pleasure, first President of the R.I.B.A. cricket club. Both at the Arts Club and at the A.A. he was a much-liked figure, and a host of friends will join in expressing deep sympathy to his wife (as Margaret Calkin a talented artist and designer) and their two daughters.

Mr. Arthur Kenyon, C.B.E., F.R.I.B.A., writes:

C. H. James ("Jimmy" to us all) was the most delightful egoist that one could possibly meet but his keen sense of humour made it all seem so natural. He had perfect faith in himself and in his gifted family and had praise for all who worked around him. He was able to train people to work in his own style and his own draughtsmanship so that you felt that he himself had made every drawing and done all the lettering himself and he was a beautiful draughtsman! He never forsook his drawing board for he was in truth a master architect. He meted out the same praise to his builders' foremen and clerks of works for he had the happy knack of making companions of them all. He never wavered in his design; he knew what he wanted and he never got entangled in new ideas. He perfected and simplified the ones he understood.

His early small house work had great charm; there was always some feature or other which lifted it above the orthodox. He had exquisite taste and took infinite pains over the smallest detail and when he got on to his larger subjects he was able to apply the vast experience he had gained in his lesser works. Whether it was work for the Goldsmiths' Company or a block of dwellings he never allowed a moulding to go astray. He took infinite care.

James surrounded himself with beautiful things in his office and in his home and I am sure this gave him inspiration. He was very English in his outlook; he did not travel a great deal and was not influenced by foreign architects' work. He loved the old parts of Hampstead and Highgate and when he built in that district, which he did quite extensively, he was able to mingle his work with the surroundings and add to the beauty of the district. His work was always human in outlook. Even in his high blocks of flats he was able to achieve a human scale and a sense of homeliness, which is so often lacking and which is a great accomplishment. He seemed able to persuade or influence his clients to do the right things, and when his work was completed it all appeared to be so natural and simple. He had a great knowledge of materials and craftsmanship and he was able to use them both in their proper relationship.

"Jimmy" James leaves with us buildings which will live and mature and will rank with the best of the past for they are stamped with loving care, grace and devotion and with knowledge and understanding which is surely the mark of a true master. Everyone seemed to be his friend; when he entered a room his presence was felt. He was easy of manner and generous of heart. The profession has lost a true architect and we have all lost a great friend.

H. BRYANT NEWBOLD, F.R.I.B.A.

We regret to record the death, which took place just before Christmas in a road accident, of Mr. H. Bryant Newbold, F.R.I.B.A. Mr. Newbold, who was trained as an architect, was for some time on the staff of Trussed Concrete Steel Co., but it was as founder and editor of *The Official Architect* that he will best be remembered. He had previously been connected with the founding of *The National Builder*, *Practical Building* and *The Builder's Manual*. A genial man, of wide sympathies, he will be missed by a wide circle of friends. He was 69.

COMPETITION NEWS

SHEFFIELD UNIVERSITY

Sheffield University have instituted an architectural competition open to architects resident in Great Britain, for building design and layout. The competition is in sections. One is for the design of a new library and buildings for the arts departments and administration; the other for layout of the area, sketch elevations for a physics department, medical school, refectories and staff house, a large hall and other accommodation for the Students' Union, and extensions to the chemistry department. Premiums are £5,000, £3,000 and £2,000. Sir Percy Thomas, PP.R.I.B.A., of Cardiff, Mr. F. R. S. Yorke, F.R.I.B.A., of London, and Mr. Gerard Young, Pro-Chancellor of Sheffield University, will adjudicate. Conditions are obtainable on deposit of £2 2s. from the Secretary to the Competition, The University, Sheffield. The last day for questions is March 14, and the closing date October 31 next.

THE DEVELOPMENT OF MODERN ENGLISH CHURCH DESIGN—2

By PAMELA CUNNINGTON, ARIBA

The first part of Miss Cunnington's article appeared in our issue of January 23 last.

AS an example of an almost complete break with convention, the John Keble Church, Mill Hill, by D. F. Martin-Smith, is of special interest (Fig 3). It was a sincere attempt to plan a church for congregational worship. The body of the church is practically square, and is designed as a simple auditorium. The choir are

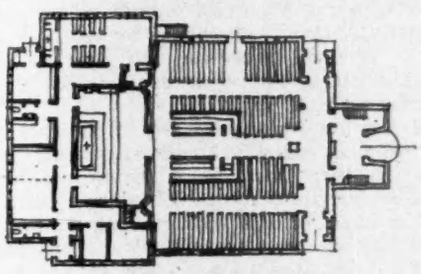


Fig. 3. John Keble Church, Mill Hill, by D. F. Martin-Smith, A.R.I.B.A.

seated among the congregation, and the sanctuary is wide and spacious. Good vestries are provided, and there is ample space for ceremonial. The altar and pulpit are visible from all parts of the church. The fittings are well designed.

For all this, however, the church is disappointing. It lacks atmosphere, and it is not the type of building to improve with age. The beauty of whitened walls is lost when they become stained from heating pipes and cracked through moisture movement. Although this church, with its simplicity, is perhaps a more fitting memorial to John Keble than the Post-Tractarians would have built, it is not likely to have much lasting influence on modern church design.

St. Alban, North Harrow, by Arthur Kenyon, is designed in a modified version of Romanesque (Fig. 4). Externally it is attractive, with a well-proportioned tower. The interior is rather cold, with almost shadowless daylighting. The walls and barrel vaulted roof are whitened. There is no east window and the English altar has a high dorsal which appears rather incongruous, although the hangings themselves are well designed. The pulpit and lectern are of the "ambo" type. The Lady Chapel is quite different in character—the walls are panelled in plywood, giving the chapel a warmer appearance than the rest of the church.

Some of the most striking modern churches were built by Cachemaille-Day, Welch, and Lander. St. Nicholas, Burnage, Manchester, built in 1931, is not particularly attractive externally. The contrasting vertical and horizontal bands of brickwork give a rather jazzy appearance. Internally, the most interesting feature of the church is the raised chapel behind the high altar. The choir are in a side gallery.

St. Saviour, Eltham, built in 1933, is more conventional in plan. Interest is obtained by contrasting textures—brick piers, rendered walls, timber tie-beams, and concrete ceiling. Colour is concentrated in the hanging rood.

St. Michael and All Angels, Wythenshawe, built in 1937, is a most unusual church (Fig 5). The auditorium plan may be compared with that of the John Keble Church, but St. Michael's has far more atmosphere. The star-shaped plan is divided by light columns which do not obscure the interior. The reinforced concrete frame, with its "Diagrid" roof, results in an interesting structural form which has almost the character of eighteenth-century Gothic work. The high altar is particularly dignified.

IMPROVEMENTS IN PLANNING

During the last 20 years, there is no doubt that many advances have been made in church design. As far as practical requirements are concerned, the problem has, on the whole, been worked out. The Incorporated Church Building Society has done excellent work in this direction, and in raising the whole standard of church design and construction. No longer do we build "cheap" churches, barely within the limits of structural stability, but decked with a profusion of stone "dressings."

It is, indeed, rare to find a church built within recent years where half the congregation are unable to see the altar or the pulpit, or to hear the service distinctly. Nor are the chancels filled with unnecessary steps—a source of danger to clergy, servers, and communicants alike. If we have criticisms to make of the work of this period, they are certainly not of these matters.

What lessons can we learn from the churches of the inter-war years? Normally it would be difficult to study so recent a period objectively, but we have been separated from it, not only by time, but by the bewildering events of the last twelve years, so that the years before 1939 already appear as history.

First, it is now generally realised that there is no ideal church plan. The great diversity of ceremonial usage within the Church of England will always result in an absence of uniformity in plan requirements.

In some cases, the simple "meeting house" plan is the most suitable. This is difficult to handle successfully, except in the case of small buildings. In a large church of this type, the comparatively great width of the nave requires a considerable height to achieve dignity. For a small church, where the ceremonial will be of the simplest type, this plan will be most suitable.

The plan, often found in medieval churches, and sometimes in the nineteenth century, with an aisleless nave, and transepts, has little place to-day. Transepts are unsatisfactory as space for the congregation: from the back of them it is impossible to see the altar, and the acoustics are often bad. A shallow transept may, however, be used successfully for the choir and organ, and side-chapels are sometimes in this position—where isolation is, in fact, an advantage.

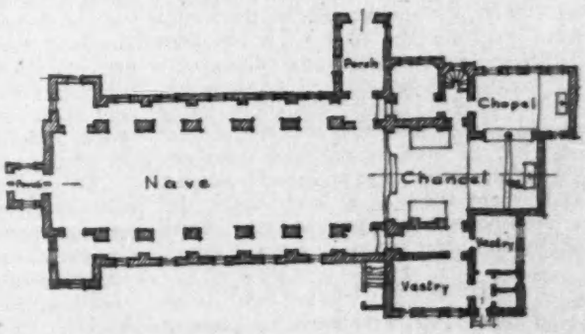
The medieval plan, with aisles about half the width of the nave, has the advantage of giving dignity to a building of moderate height. It is also suitable for full ceremonial. There is always the danger, however, that piers may obstruct the view of the altar, or pulpit, from some of the seats, and give bad acoustic conditions in other parts. In a small church this plan may result in too narrow a chancel, thus defeating one of the main objects of adopting this plan, to provide space for ceremonial.

The passage-aisle plan is one of the most popular types: it may be treated in various ways. In some cases the aisles are made too insignificant; if they are designed for processional use they should be sufficiently wide for three servers to walk abreast without touching the walls, or the congregation. Six feet should be aimed at for all processional aisles. Height is equally important; banners should not have to be lowered when passing through the aisle.

Some of the "pierced buttress" type of passage aisles make dignified ceremonial impossible. On the other hand, if they are merely intended for access to and from the seats, it hardly seems worth while providing structural aisles.

The arrangement of the sanctuary, and its relation to the nave, is another point needing careful consideration, and is largely dependent upon the ceremonial use. The layout will be to a great extent determined by the position of the choir and organ. If these are to be placed in the chancel, successful planning is far more difficult.

In recent years there has been a tendency to remove the choir from this position—generally to a west gallery. This is another problem to which there is no standard solution: much will depend



S · ALBAN · N · HARROW

Fig. 4. The church of St Alban, Harrow, by Arthur Kenyon, C.B.E., F.R.I.B.A.

upon the local conditions and customs of the church.

The chancel choir, although it is going through a phase of unpopularity at present, has certain advantages. If the choir are to take part in processions they are better placed in or near the chancel. To bring choirboys down from a gallery during the service and return them to their places in a reverent and unobtrusive manner is not an easy task for the sacristan or choir master.

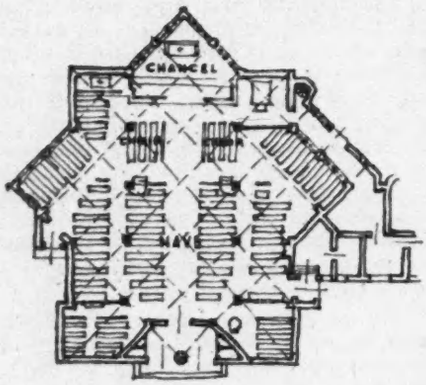


Fig. 5. St. Michael and All Angels, Wythenshawe, by Cachemaille-Day, Welch and Lander.

If, however, the gallery is approached directly from the choir vestry, and the choir, in their places before the start of the service, do not leave them until after its conclusion, this arrangement is more satisfactory. The singers can be conducted, if necessary, without ostentation. Whether the fact that they are hidden from the congregation is altogether an advantage is doubtful.

The choir are sometimes placed in a transept, or a transept gallery. This has the advantage that the singers are visible, but do not obstruct the sanctuary. There are examples of this choir position at St. Nicholas, Burnage, and St. Richard, Haywards Heath.

Many of the difficulties of the chancel choir can be solved by careful planning. In Victorian days, chancels were too narrow and long, giving a cramped appearance to the choir. They were, in fact, based on the proportions of medieval chancels—where no choirs or, at most, a few singers were accommodated. A heavy chancel arch often prevented much of the sound from reaching the nave. The modern preference for a passage aisle plan generally results in a sanctuary of ample width, and by careful planning the choir can be placed in such a manner that they do not obstruct the view of the altar from any part of the nave. For antiphonal singing, and where there is a large choir, this arrangement is as good as any. Small choirs are better placed in a single group.

THE BASILICAN PLAN

In certain quarters there has been an attempt to revive the basilican plan—with no structural chancel, and the high altar dominating the church. Sir J. N. Comper advocates this arrangement most strongly in his book "Of the Atmosphere of a Church."

This plan, derived from the Early Christian churches, is considered more suitable for congregational worship than any variant of the medieval plan. If the altar is brought into the nave, it must be treated in a sufficiently prominent manner, and the ciborium or baldachino is probably the most suitable solution. Comper's arguments are forcibly and convincingly expressed. His own Church of St. Philip, Cosham, shows a practical application of these principles (Fig. 6).

The most important example of this plan is still Sedding's Church of the Holy Redeemer, Clerkenwell. It has been pointed out as the ideal type of urban parish church. The interior, however, is not particularly convincing. The high altar is certainly imposing—almost overpowering, with a heavy ciborium. All sense of grandeur, however, is completely destroyed by the fact that four other altars are clearly visible in the nave—distracting the eye from what should be the dominant feature of the interior.

In a medieval church there would also certainly be a number of subsidiary altars, but these would be partly hidden by parclose screens. Where a basilican plan is adopted, any side altars should be in enclosed chapels.

In the interior treatment of churches certain definite trends have developed. The fussy diaper work of the previous century has generally given way in favour of plain whitened walls.

This has been largely due to the influence of the Diocesan Advisory Committees, and of enthusiasts like T.P. Stevens, who have been chiefly concerned with the improvement of older churches. There is no doubt that whitewash is the correct treatment for most medieval churches. It provides an ideal background for the stained glass, open timber roofs, and the carved and painted fittings which are such essential features of medieval design.

Whitewash, too, has been the salvation of many a previously dreary nineteenth-century church. Even pitch-pine pews and Victorian art metalwork show to better advantage against such a background.

In modern churches, however, the almost universal adoption of whitened walls is hardly as successful. New churches are generally built under conditions of financial difficulty. Consequently there is little of richness in the fittings and stained glass is the exception. The modern preference for light oak and soft-coloured hangings often gives these new churches a cold, bare appearance which could be greatly relieved by the use of more varied colour and texture in the actual structure.

The installation of the usual type of low-pressure hot-water heating system—with its resultant pattern staining—has disfigured many recent churches after a few years.

Church design during the inter-war years has, on the whole, been negative in character—a reaction against pedantry and eclecticism alike. Such a reaction was unavoidable, and in a few of the better churches there were signs of the beginning of a new and positive school of church design.

Church building continued at the same rate until 1939. A number of half-built churches were completed, and, in a few isolated cases, new churches were built during the war. Prof. A. E. Richardson's church at Greenford, an interesting timber-framed structure, is an example of war-time building. Most programmes were, however, abandoned.

Throughout the war years many churches were destroyed or damaged, most of these dating from within the last hundred years. Good and bad work suffered alike, but some of the finest nineteenth-century churches are now lost to us.

The question of restoring these churches will present many difficult problems. Whether a Victorian church of no real architectural merit should be replaced in its original form—for the sake of its associations—is not a decision likely to rest with the architect.

On the other hand, where churches of real architectural value have been damaged only, there may be a strong case for complete restoration. They are a part of our architectural history, and, in many cases, an exact reproduction is possible. St. John, Red Lion Square, is, unfortunately, not to be rebuilt.

We may hope to see St. Agnes', Kennington Park, restored to its original state.

But while churches have been destroyed or damaged, services have been held in halls, or temporary chapels. Often, these cramped and unpromising buildings have been skilfully converted into dignified churches. The temporary chapels at All Hallows by the Tower, and St. Lawrence Jewry, are examples of what has been done, in many cases with materials saved from the destroyed building. These temporary churches have a character of their own.

THE FUTURE

The future development of church design is not easy to foresee. Few churches are likely to be built in the next few years, although plans are already being prepared. Although we may be vaguely dissatisfied with pre-war developments, there have been few positive recommendations from official sources—apart from general principles of planning.

Church architecture at present is bound to be self-conscious—we have no living tradition. The best of the pre-war churches were isolated examples—strongly influenced by the personalities of their designers. Few of them appear at home in their surroundings.

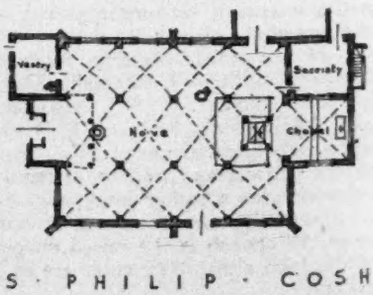


Fig. 6. The church of St. Philip, Cosham, by Sir J. N. Comper.

We must not be discouraged by this situation. It has occurred before. The early Renaissance churches must have appeared strange and out of place in this country but, designed as they were to suit the needs of their day, they were absorbed by the Anglican tradition. The eighteenth-century churches fitted into their background in a way which has never since been equalled.

The Ecclesiologists have been blamed for breaking this tradition. In fact, the tradition had begun to die out before the Oxford Movement began. Life in the industrial towns of the early nineteenth century must have been exceedingly depressing. To-day, it is easy to be superior about the Post-Tractarian churches—the garish decoration, and mass-produced ornaments. But most of these churches were built in the slums, and provided the only source of brightness and warmth—apart from gin-palaces.

Few would suggest that these churches should be copied to-day. Glitter and excitement are abundantly supplied from other sources. In an increasingly mechanical civilisation our churches should express a dignity and calm, not merely non-committal good taste.

We must recognise the diversity to be found in the English Church. In some cases we shall have to plan for all the rich beauty of medieval ceremonial. Other churches will reflect the scholarly tradition of the seventeenth century. Dual-purpose Mission churches will have to be built in certain areas.

The question of architectural style cannot be avoided. For the next few years economy will have a considerable influence on design, but the problem cannot be fully solved in this way. Looking at the pre-war churches, it is clear that the most convincing among them have been those where the contemporary architectural idiom has been most frankly accepted. Churches, in the past, have been in the forefront of architectural development, and until that position is restored our new churches will always lack conviction.

It has been argued that church architecture is not a field for self-expression—that churches should not reflect the characteristics of their designers. This condition is practically impossible to fulfil, unless we are to accept the negative style of the inter-war years. Of all the nineteenth-century architects, Pearson could never be accused of exaggerated self-expression. His declared aim was to design churches that would bring people to their knees. Yet Pearson's churches are among the most distinctive of the period.

Our new churches must be designed with as much thought, and inventiveness, as we give to secular buildings.

The best of the recent continental churches show what can be done in the contemporary manner, without losing any of the genuine principles of church design. If English church architects can avoid the dangers of false historicism, of "folk culture," and other anachronisms, the Anglican tradition can find full expression in the architecture of to-day.

(Concluded)

CORRESPONDENCE

THE KAMPALA COMPETITION

To the Editor of *The Builder*

SIR,—I am told on good authority that 700 architects have applied for the conditions of this competition, each depositing £3 3s., so that the Uganda Electricity Board is £2,205 in hand.

The rewards offered for the design of a building to cost £350,000 total £2,500, of which £1,000 merges with the fees of the successful competitor. In other words the promoters will have the advantage of 699 alternatives to choose from for £1,500.

The deposits on the conditions are, however, returnable with the conditions, and it would seem that the conditions might well be returned.

LAWRENCE DALE [F.R.I.B.A., F.R.S.A.]
Lloyds Bank Chambers,
Carfax, Oxford.

NOISE IN HOSPITALS

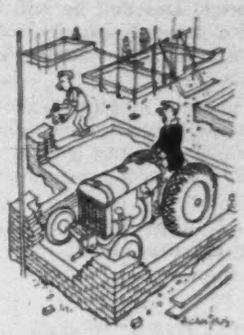
To the Editor of *The Builder*

SIR,—I lately spent a month in a private ward of a suburban London hospital, and it is no exaggeration to say that I suffered as much from noise as I did from the effects of a painful operation. I address this letter to you, sir, as I regard this as the best way of reaching architects, who presumably have it in their power to do something about this noise nuisance at the design stage.

This particular hospital was built about 40 years ago and may be quite out of date in planning and construction—I do not know. Walls and ceilings of wards and corridors were of hard plaster, painted; floors of wood block, except in the corridors, where some form of rubber covering had been put down. Doors were of hardwood, with locks that snapped like the crack of a whip. The bathrooms and w.c.s, immediately opposite my ward, were fitted with "Engaged–Vacant" catches, which exploded intermittently like Chinese crackers. I am not sure where the kitchen was, but I think it was at the end of the corridor; in any case, it was here that the meals were assembled. For some reason or other the least noise, like the dropping of a knife on a tray or the rattle of a plate or a dish, set up reverberations in this corridor like a pistol shot in St. Paul's Cathedral. The noise was, at times, so shattering and persistent that I had to hold my hands to my ears. No doubt the nerves of one who has just come through a serious operation are apt to be on edge, but even when I was convalescent I found the noise disturbing. I need hardly say that I am making no insinuations against the efficiency of the hospital staff.

I am not sufficiently familiar with current hospital practice to know whether architects are fully alive to the noise nuisance, but I do know that many new hospitals are being planned, and now that the building situation appears to be getting easier, it may be possible to start on the erection of some of them in the near future. If this letter should succeed in catching the eye of any hospital architects who may not have given full consideration to sound-deadening in their designs it may serve a useful purpose. By taking the necessary measures now they can lessen, perhaps eliminate altogether, the noise which is so jarring to taut nerves, and so earn the gratitude of future generations of hospital patients.

LAYMAN.



"All I know is—they weren't 'ere when I stopped ploughing last night!"

EDUCATION IN THE BUILDING INDUSTRY

To the Editor of *The Builder*

SIR,—Mr. Woodbine Parish is certainly at his best when it comes to education for building. His latest paper given to the Architectural Association on January 28, and reported in your last issue, is just another example of his appreciation of the very urgent need for the necessary team work that is required, and must be built up if the industry in its present state is to survive, especially when viewed as a long-term policy.

With the creation of these teams and their resultant productions, it would not be long before they became known to the public. Once this happened the task of attracting apprentices would become unnecessary; it would then become a job of *selection*. That above all is what our industry requires.

H. PALMER.

49, Kenilworth-road,
Penge, S.E.20.

COST OF TENDERING

To the Editor of *The Builder*

SIR,—I have been interested in the correspondence relating to the cost of tendering following my suggestions concerning a system of reimbursement to unsuccessful tenderers. In the method I propose it would be necessary of course to introduce certain safeguards against abuse. This goes without saying, and can be done in several ways, for example, by taking more care in the selection and capacity of firms to be invited to tender; by keeping the number of such firms to an absolute minimum, consistent with the scope of the work; and also by stipulating that the architect and the quantity surveyor must be satisfied that all tenders are *bona fide* before certifying.

It is true that the building owner would be called upon to include the suggested tendering fund in his capital costs and would be aware of this item. Your correspondent Mr. Holmes seems rather to deprecate the fact that the method I propose would draw attention to this additional factor in the price build-up: surely that is the whole point? The building owner will know beyond doubt that he will be securing the services of

numerous firms in competition for the lowest price, and that he will be making a definite known contribution towards this service—I can see nothing inequitable about this.

The present system cannot possibly be in the best interest of the building owner if the selection of the tenders is decided arbitrarily by a group working within the industry.

D. E. HARRINGTON [F.R.I.B.A.].
24, Buckingham-street,
Adelphi, W.C.2.

BUILDERS' DISCOUNTS

To the Editor of *The Builder*

SIR,—The problem of discounts under Clauses 21 and 22 of the R.I.B.A. Form of Contract continue to provoke arguments and discussion between the building industry and professions.

Many of the difficulties can be solved at once if it is clearly understood that the discounts are *cash* discounts—that is discounts given for cash paid. If no cash is paid no discounts are given. In other words the cash discount is in direct relation to the amount of cash disbursed by the contractor on behalf of the employer.

What happens if the employer elects to employ a specialist under a P.C. sum and pay him direct?

May I call attention to Clause 23 which commences "The Contractor shall permit the execution of work, *not provided for in the bills of quantities*, by artists, tradesmen and others engaged by the employer" [italics mine].

Whilst this clause gives the employer the right to engage people other than the main contractor to work on the site the italicised words are very significant.

I contend that, under this Clause, the contractor has only to permit the execution of work by others engaged by the employer if it is work "not provided for in the bills of quantities"; that is, if work *is* provided for in the bills of quantities by way of P.C. sums, etc., the main contractor can refuse to permit its execution by "others engaged by the employer," and insist that it be dealt with by way of "nomination" under Clauses 21 or 22.

It is obvious, therefore, that if an employer wishes to employ and pay a specialist direct, it is essential that any sum set aside to cover the cost of this work should on no account be included in the bills of quantities, otherwise the main contractor can insist upon nomination.

This contention is supported by Clause 1 which gives to the architect the right to vary the contract by way of—"addition or omission or substitution of any work," or to modify the design, quality or quantity of the works."

That is, he can omit or add or vary but he cannot take out something from the works and elect to have it executed by a specialist employed and paid direct by the employer (except in certain instances of default by the main contractor where appropriate action is defined elsewhere in the contract conditions).

Although I know this procedure has frequently been used, I believe it would rank as a breach of contract unless the main contractor's prior permission in writing had been obtained.

H. M. STAFFORD
[F.I.A.S., F.I.Arb.(Hons.)]
20, Woodland-avenue,
Hazel Grove, Cheshire.

SUB-CONTRACTORS AND SUPPLIERS

To the Editor of *The Builder*

SIR,—Arising out of the recent article on Nominated Sub-Contractors and Suppliers by Mr. Cooke in your issue of January 16, I believe there may be many general contractors who would like to see Clause 22 of the R.I.B.A. Form of Contract relating to nominated suppliers amended. I suggest this clause should require the nominated supplier to enter into an agreement covering delivery, payments defects and price variations, and the general contractor given the same right of refusal as he has against nominated sub-contractors under Clause 21.

Apart from the contract wording itself, as your contributor rightly states, the architect should, when requesting quotations, insist that they be in accordance with the conditions imposed on the contractor. If he did this, many of the difficulties and delays with their attendant costs to the contractor would disappear. More often than not the architect doesn't, with the result that the contractor, being without protection under his contract, is forced either to fight a continual losing battle or accept without a murmur the conditions imposed upon him.

E. A. W. HOWSON [A.C.I.S.].
6, The Mead, Wallington,
Surrey.

HOLIDAYS WITH PAY: FINANCIAL BURDEN ON BUILDERS

To the Editor of *The Builder*

SIR,—The recent award of an additional week's holiday with pay accentuates a problem which has been worrying many builders. Assuming that the average employee will take his annual holidays in August, at least 66 stamps at 5s. 6d. each will be affixed to his cards at this time. In addition, an average of eight stamps at 2s. 9d. will be affixed to his public holiday card at this time, making a total of £19 5s. By paying the employee £13 14s., which has to be found out of capital, the builder can claim reimbursement for this amount.

A small builder with, say, twenty employees has, therefore, to deposit £385 of his capital with the Management Company as well as finding a further £274 before he can claim any reimbursement.

It is obvious that, with the present restrictions on credit, this agreement adds considerably to the financial difficulties of builders, large and small. It is therefore imperative that some amendment should be made to the holidays with pay agreement which will avoid such a large amount of builders' capital being held by the Management Company.

JOHN S. BRIERS.
97, East Hill, S.W.18.

CHURCH ROOFING MATERIALS

To the Editor of *The Builder*

SIR,—There were so many misleading statements in this series of reports drawn up by the Roofing Committee of the Central Council for the Care of Churches, in conjunction with S.P.A.B., that I am impelled to draw attention to some of them which are not merely misleading but are positively harmful in that they adversely comment on materials with which we are familiar.

Below I have set out some extracts (in italics) from the sixth report entitled "Non-traditional Substitute Materials" which appeared in your issue of December 26, 1952, and my comments thereon!

(1) *Plain and reinforced bitumen felts if well laid and maintained will give temporary protection to boarded roofs for periods up to about five years.*

This is nonsense; a heavy bituminous roofing properly laid and maintained will last as long as the timber that supports it.

(2) *For first-aid temporary protection over roof boarding, ordinary plain bitumen felt may be used, but if it is required to last for more than a few months the reinforced felt should be used.*

A few months indeed! Not even the cheapest and worst roofing felt made would fail to give protection for many years.

(3) *The more or less smooth unbroken surface of bituminous felt coverings is not well suited on ancient buildings.*

If this premise is correct then lead is equally unsatisfactory—in fact at a little distance it is indistinguishable from roofing felt.

(4) *Asphalt has been extensively used in the past, but it must not be used on timber roofs.*

Asphalt has in fact for long been recognised as suitable for use on timber roofs *provided* that it is laid on black sheathing felt and, where needed, is reinforced with expanded metal.

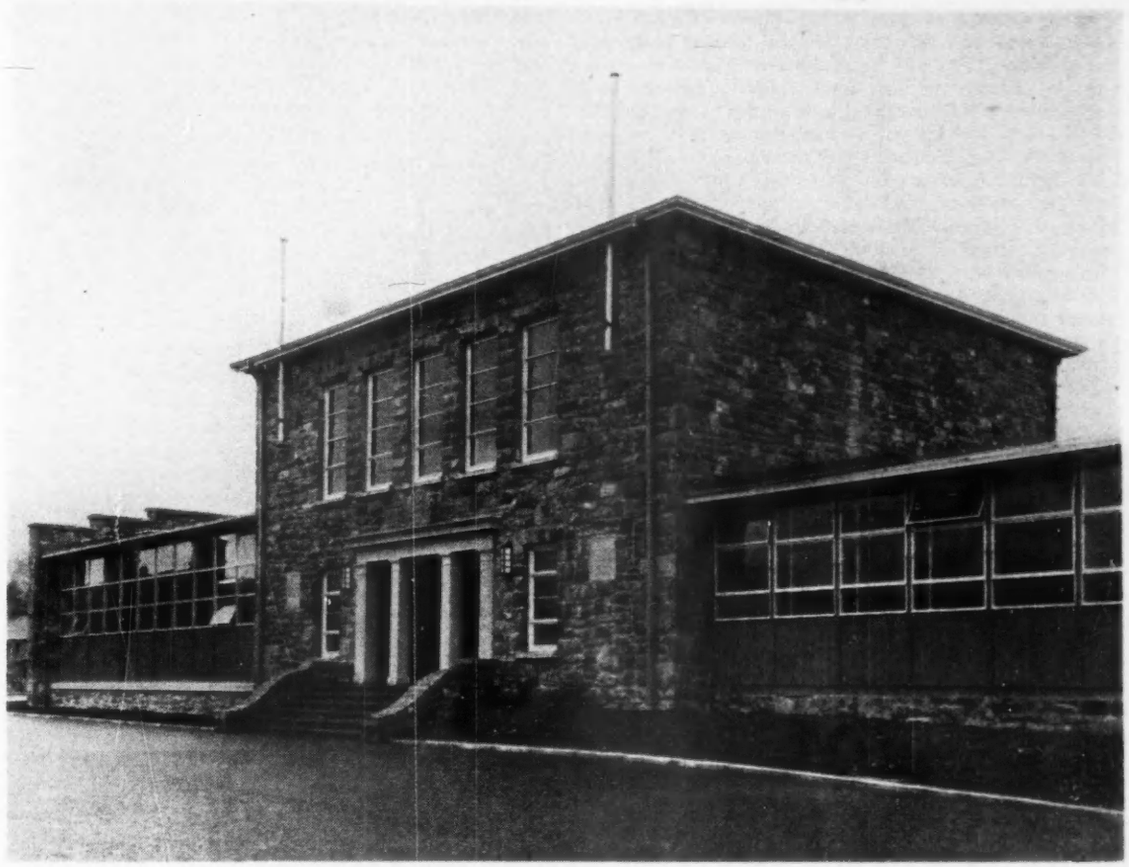
(5) *Asphalting on concrete flats and gutters should be carried out by a first-class firm of specialists. The material should be natural rock asphalt with high bitumen content to British Standard* 1162 : 1944.

In point of fact there is no British Standard Specification 1162 for natural rock asphalt with high bitumen content. The bitumen content of natural asphaltic rock is in fact insufficient to enable a suitable mastic asphalt to be made from it, and the bitumen content therefore has to be increased by the addition of bitumen from petroleum refining. In any event it is debatable whether the exceedingly high cost of natural rock asphalt is always justifiable and whether that material is to be preferred to high-grade so-called synthetic asphalts which are made with the correct proportions of bitumen including Trinidad Lake Epure and where the limestone content comes from Derbyshire. A final point on this matter is that in the absence of any system of testing the mere specifying of a British Standard is no guarantee of the final quality required.

On the question of fire risk, well laid and sealed bitumen roofing is as fire resistant as slated, tiled or asbestos sheeted roofs. Moreover, as a bituminous roofing is sealed, a cushion of hot air collects under the roof and chokes back the flames.

In general, provided the work is entrusted to reputable firms whose advice should be sought and used, both bituminous roofings and asphalt may be employed for permanent work with confidence.

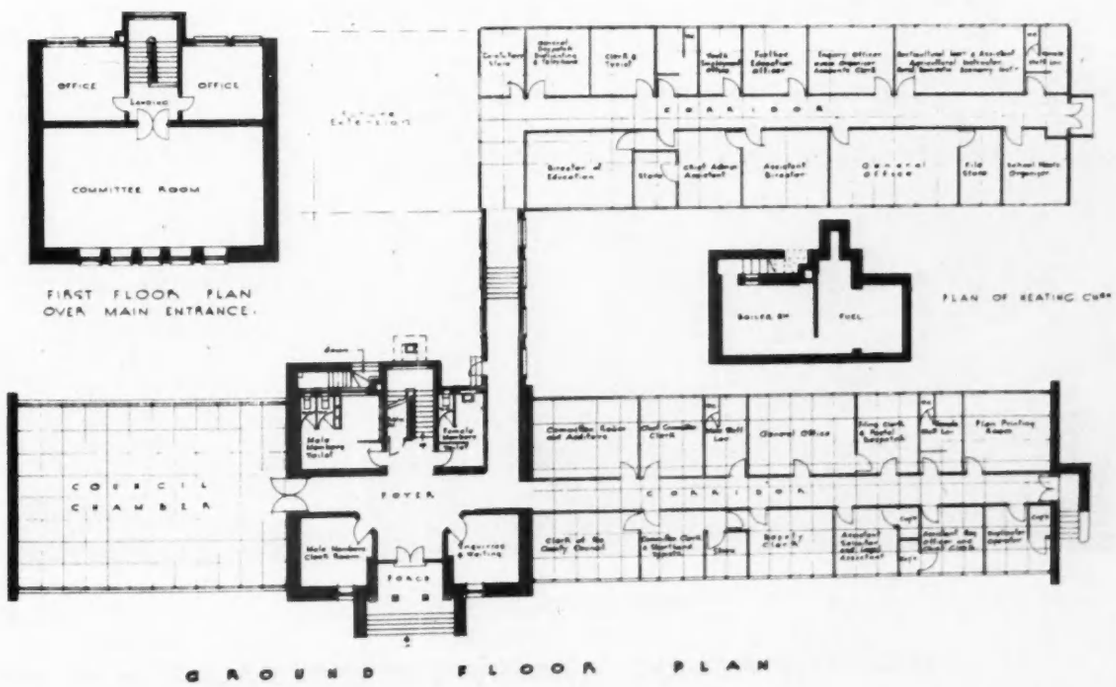
B. ENGERT, Managing Director,
Engert and Rolfe, Ltd.
Barchester-street, E.14.



General view showing the stone-built central block flanked by aluminium buildings.

COUNTY OFFICES AND COUNCIL CHAMBER, DOLGELLEY

NORMAN L. JONES, LRIBA, COUNTY ARCHITECT, MERIONETHSHIRE



GROUND FLOOR PLAN

IN the shadow of the 2,900-ft. peak of Cader Idris, rimmed by other hills, lies the town of Dolgelley, which since 1920 has been the administrative centre of the county of Merioneth. Here, facing south across the town to the great bulk of the mountain from an elevated site known as Penarlag, have been built the new County Council Offices and Council Chamber. The dominant feature of the group of offices is a two-storey central block in local and traditional stone. On either side of this block are single-storey aluminium wings, finished in a shade of gunmetal grey which harmonises with the stone and with the building's surroundings. Behind this frontage is a further group of aluminium buildings, linked by a corridor to the central block and planned in such a way that, with the erection at a later date of a block of finance offices, the whole scheme will form in plan a letter "H."

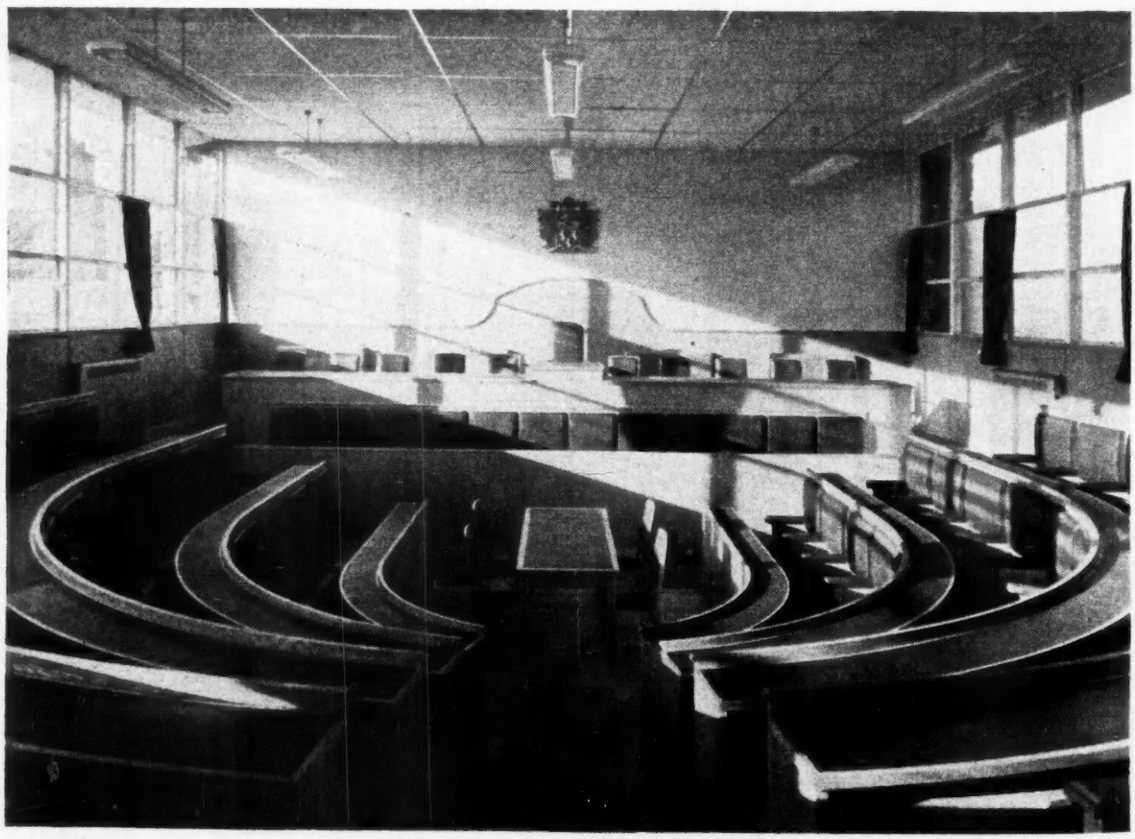
The building has been designed with the centre line of the two-storey block coinciding with the centre line of the road bridge over the River Wnion. A new approach road, linking with an existing road, has been constructed from the direction of Bala, and parking facilities are provided. In the stone-built central block are the main entrance hall and linked to it by a corridor is the education block, also in aluminium. There are special rooms for Government audit purposes and for plan printing equipment.

The floor of the council chamber is of polished hardwood, and the internal woodwork and furniture are of English and Japanese oak in natural colour. Seating is in Dunlopillo, with green hide coverings. The walls of the chamber and of the committee rooms have been acoustically treated. The floor of the main committee room is covered with polished oak blocks. The entrance hall and stairs are covered with rubber, and plastic tiles have been laid in the offices. Fluorescent lighting has been fitted in the council chamber, main committee room and entrance hall.

The construction of the aluminium portions of the buildings is based on standard 4-ft. sections. The roof, of aluminium sheeting, is bonded to a layer of fibre board, below which at tie-bar level is fixed the finished ceiling of insulating board, overlaid with a glasswool quilt to provide excellent thermal and acoustic insulation. The deep eaves of the roof are designed to reduce glare. The walls are formed from aluminium framed panels filled with glasswool to provide thermal insulation.

The whole of the traditional building work was carried out by direct labour, and masons trained by the County Surveyor's Department were seconded to the County Architect's Department to carry out the stone work. The approach road works were carried out by the County Surveyor's Department. The approximate cost of the buildings, including roads, fencing and furnishing is £50,000. The contractors employed on the project were as follows :—

Aluminium buildings, Bristol Aeroplane Co. (Weston), Ltd., Weston-super-Mare ; central heating, Saunders and Taylor, Ltd., Manchester ; fire resisting floors and roof, Tarmac, Ltd., Wolverhampton ; wood block floors, R. W. Brooke and Co., Ltd., Liverpool ; terrazzo floors, Terrazzate, Portmadoc ; reconstructed stone dressings, Empire Stone Co., Ltd., Birmingham ; electric lighting and power installation, Jones Bros., Bala ; aluminium windows, Gardiner Sons, & Co., Ltd., Bristol ; sanitary fittings, Rowe Bros. & Co., Ltd., Liverpool ; lock and door furniture, Lockerbie and Wilkinson (Birmingham), Ltd., Tipton, Staffs. ; furnishing of council chamber and internal woodwork of centre portion, George M. Hammer and Co., Ltd., London ; asphalt roof and plastic floor tiles, Penmaenmawr and Trinidad Lake Asphalt Co., Ltd., Liverpool ; rubber floors, Semtex, Ltd., Salford ; carpets, Festiniog Carpets, Ltd., Blaenau Festiniog.



The council chamber in one of the aluminium wings.

COUNTY OFFICES AND COUNCIL CHAMBER, DOLGELLEY

View of the north block : South side.

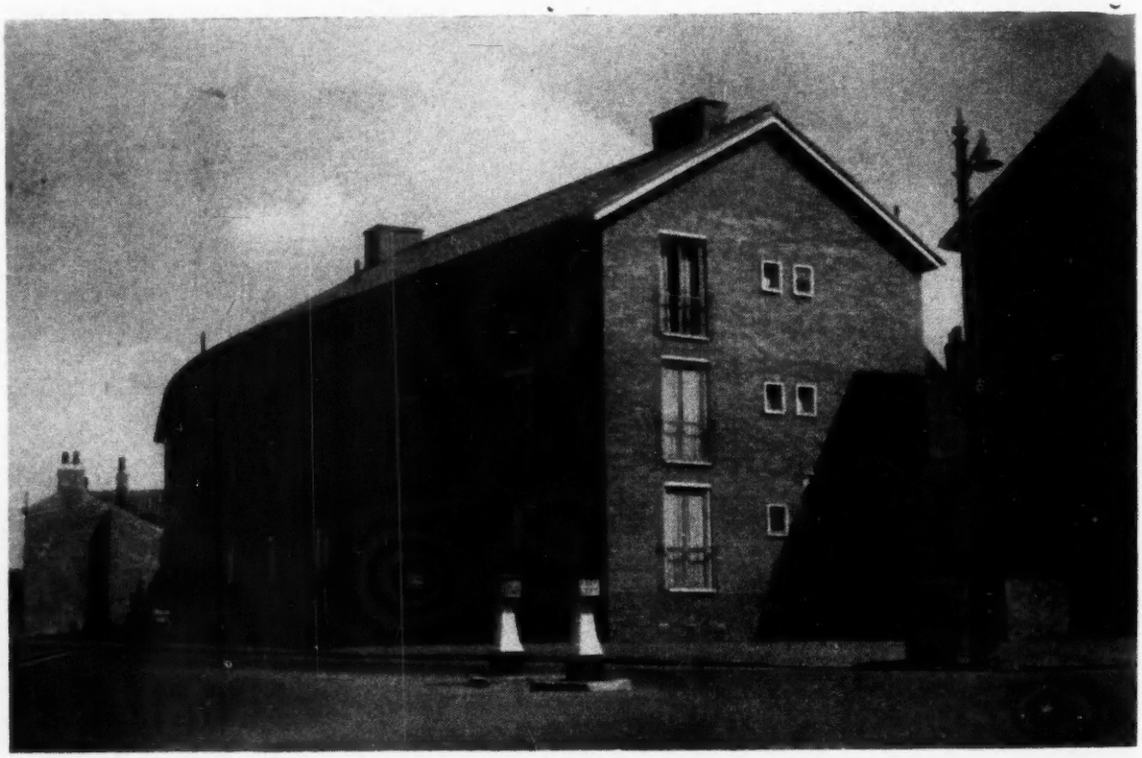
FLATS FOR THE CITY OF YORK

GORDON TOPLIS AND ROBERT MEADOWS, AA.RIBA, ARCHITECTS
PHILIP GEERS, ARIBA, ASSISTANT ARCHITECT

THESE flats have been built to the winning design of an open competition in connection with the Festival of Britain in York in 1951. The site selected was in the southern area of the city immediately south of the city walls, part of the site being derelict and the remainder to be redeveloped in the next 50 years. The object was to build three-storey blocks of flats in such a way as to provide a good layout for both the interim and final development, and to arrange them in the first stage so as to screen the important junction of Fishergate and Paragon-street from the untidy motley of buildings which was likely to remain for some time. It was also essential to pay close regard to the proximity of the medieval walls and the good eighteenth-century vernacular buildings of the neighbourhood. The immediate building programme accordingly consisted of two blocks at right angles parallel to Fishergate and Paragon-street and linked by a screen wall together with access steps and a door through to the space at the rear. The north block was curved to allow for the improvement line in Paragon-street and to fit in with future redevelopment. Vehicle access from the two main roads was avoided and was provided from a minor road to the east. The irregular area behind the blocks allowed for turning space and a sizable drying yard and play area for children. An additional screen wall was provided to act as a link to the east with a public house standing well forward of the new building line, and the now exposed semi-derelict gable end of this building was repaired as necessary to complete the group. The site slopes in both directions towards the north-west corner.

Detailed Schedule of Accommodation

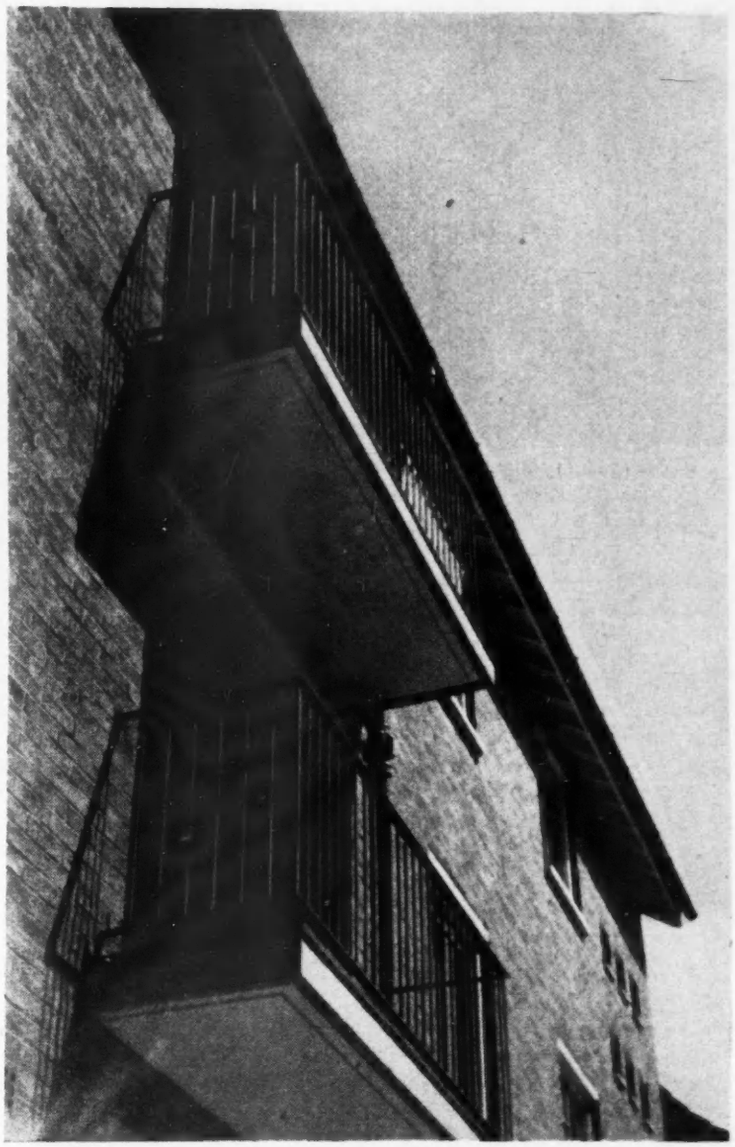
3 Flats with (single person)	Living-room .. .. .. Bed recess Working Kitchen Bathroom with w.c.	N. Block 416 ft. super
1 Flat with (single person)	Living-room .. .. .. Single bedroom Working Kitchen Bathroom with w.c.	W. Block 444 ft. super



North block : Elevation to Paragon-street.

1 Flat with (2 persons)	Living-room .. .. .. Double bedroom Working Kitchen Bathroom W.C.	W. Block 514 ft. super
3 Flats with (3 old persons)	Living-room .. .. .. 1 Double bedroom 1 Single bedroom Dining Kitchen Bathroom W.C.	N. Block 623 ft. super
1 Flat with (Caretaker, 3 persons)	Living-room .. .. .. 1 Double bedroom 1 Single bedroom Working Kitchen Bathroom W.C.	W. Block 641 ft. super
6 Flats with (5 persons)	Living-room and dining recess 2 Double bedrooms 1 Single bedroom Working Kitchen Bathroom W.C.	N. Block 857 ft. super

West block : Elevation to Fishergate.



West block : View showing treatment of the balconies.

2 Flats with (6 persons)	Living-room and dining space 2 Double bedrooms 2 Single bedrooms Working Kitchen Bathroom W.C.	W. Block 1,014 ft. super
2 Flats with (8 persons)	Living-room and dining recess 4 Double bedrooms Working Kitchen Bathroom W.C.	W. Block 1,120 ft. super
1 Maisonette with (8 persons)	Living-room and dining recess 3 Double bedrooms 2 Single bedrooms Working Kitchen Bathroom with w.c. W.C.	W. Block 1,273 ft. super

The seven flats on the ground floor are designed to comply with the Ministry of Health standards for old persons' dwellings.

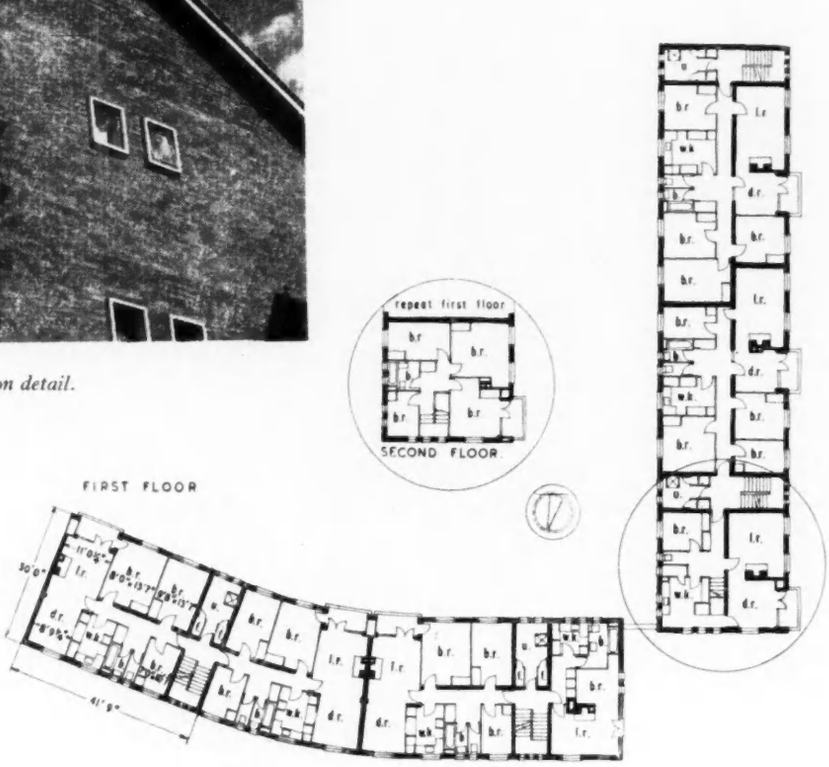
In the north block living-rooms face south and the dining recesses (where provided) are on the north side with a window overlooking Paragon-street, the city walls and the city, a most striking view. In the west block living-rooms and dining recesses face west over Fishergate. There are open fireplaces in all the living-rooms, in addition to background heating. All first- and second-floor flats have balconies facing south or west. The main staircases serve two flats at each floor level. One utility room is provided to every two flats. It contains the fuel stores and the refuse bins.

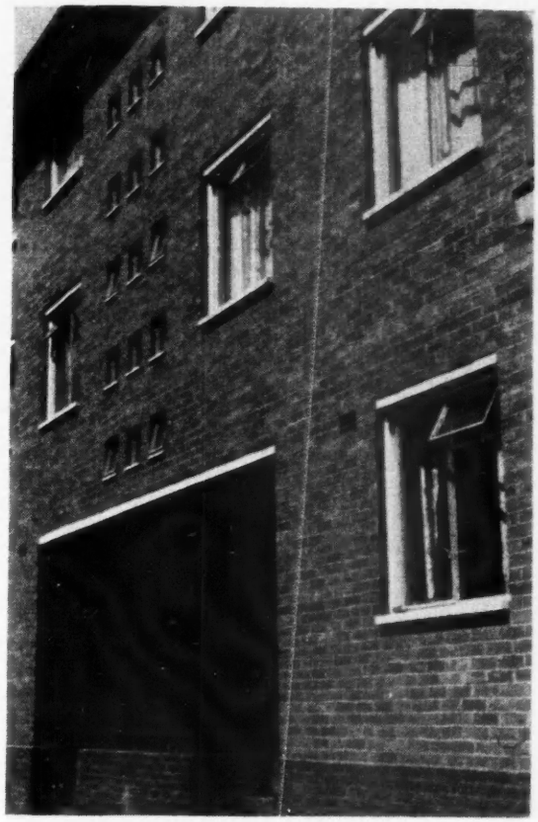
Background central heating is provided in all rooms and in public and private corridors and staircases by means of wall radiators. Constant hot water is supplied through the calorifiers in the individual flats. Bathrooms have a heated towel-rail.

Internal Finishes.—Living-rooms : softwood boarding on splines on " Cabots " quilt. Plaster walls and ceiling. Yellow-grey brick fireplaces with York stone hearths.

Bedrooms and corridors : Red-brown and grey " Accotile " floors on cement screeds. Plaster walls and ceilings.

End elevation detail.





Exterior view of staircase feature.

Side entrance detail.

Kitchens, bathrooms and w.c.s : Black " Accotile " floor. Plaster walls and ceiling. White glazed tile splash backs to sinks, lavatory basins and baths. In kitchens the floor area under sinks, drainers and gas cookers is in red quarry tiles.

Public entrance halls and staircases : Blue quarry tile floor with granolithic margin and skirting. End walls plastered and distempered light blue. Flank walls in yellow-grey brick, R.C. *in situ* staircase with granolithic finish and metal balustrade—handrail painted indigo, uprights white. Entrance doors to flats painted in various bright colours, architraves white.

General.—Doors, standard three panel. Architraves and skirtings in wood. Window boards in wood except the kitchen windows and balcony french windows which have red and blue quarry tile cills respectively. All window heads have built-in rails for curtain runners. Cupboards generally constructed in ¾ in. blockboard. Colour schemes in flats vary, but are of a neutral unobtrusive character so as to accommodate the varying tastes of tenants.

External Finishes.—Walls : Facing bricks are local yellow-grey hand-moulded sandstocks with a darker purple-red colour to the plinth. Rendered panels on the ground floor are painted deep crimson and pale blue. *Roof :* Covered with red clay pantiles. Timber on eaves and verges painted white. Gutters and r.w.p.s indigo. *Windows :* Purpose-made metal windows painted grey in fine concrete sub-frames painted white. *Balconies :* R.C. cast *in-situ*, covered with asphalt. Metal balustrades to balconies painted pale blue. Balcony fascias painted white. Balcony soffits painted grey.

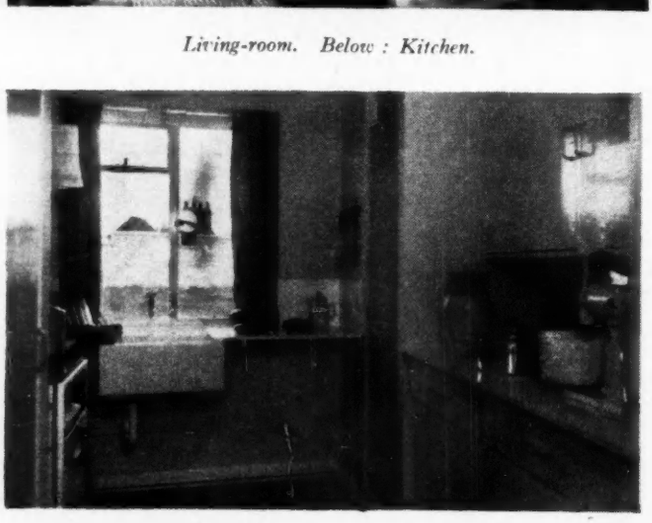
General Construction.—Foundations : As the result of trial borings made on the site it was found that the subsoil was extremely bad, consisting largely of made-up ground and wet sandy-clay with very poor bearing capacity. The type of foundation finally chosen was a reinforced concrete raft for each block stepped to follow the slope of the ground.

Walls.—External walls below ground-floor level are 15½ in. cavity brick and above ground-floor level consist of a 4½ in. brick outer leaf, 2¼ in. cavity and a 4¼ in. foamed slag concrete block inner leaf with wall ties at 9 in. centres vertically and 3 ft. centres horizontally. The central spine wall is 9 in. brick, reducing to 4½ in. on top floor. Partitions generally are 2½ in. breeze block.

Floors.—" Bison " precast concrete. *Roof.*—30 degrees pitch. A simple timber structure of purlins, collars, struts, ties and common rafters, felt and battens. *Thermal Insulation.*—The recommended standard of thermal insulation has been attained in the external walls by using foamed slag concrete blocks for the inner leaf, and in the roof by using wood-wool cement slabs to the ceiling of the top floor. *Sound Insulation.*—Cavity party walls and " floating " floors in the living-rooms are provided for sound insulation

Living-room and dining recess.

Living-room. Below : Kitchen.



between flats. Insulation is provided between the staircases and the adjoining bedrooms.

The contract price was £39,872. The contract was let in September, 1950. The first section was completed and on exhibition during the York Festival in June, 1951. The whole scheme was finished early in 1952.

The quantity surveyors were Messrs. Davis, Belfield and Everest, and the consulting engineer for foundations was Mr. Lawrence Kenchington. Consulting engineer for heating, hot-water and electrical installations was the City Engineer, York. Mr. Hardham, of the York City Architects' Dept., was the clerk of works.

The general contractors were Messrs. Sorrell (York), Ltd. Following is a list of sub-contractors and suppliers :—

Plumbing, heating and hot water, J. H. Shouksmith and Sons, Ltd., York ; plastering, R. W. Green, York ; painting, Dodworths (York), Ltd. ; roofing, Joseph Hardgrave, Ltd., York ; Accotile floors and asphalt balconies, Joseph Hardgrave, Ltd., Asphalts Co., York ; precast concrete floors, Concrete, Ltd. ; metal balustrades, E. Davis (Fixers), Ltd., York ; service lifts, G. Brady and Co., Manchester.

Waterproofing to heating chamber, William Briggs and Sons, Ltd., Liverpool ; door furniture, Parker, Winder and Achurch ; metal windows, Crittalls ; electrical installation, North-Eastern Electricity Bd. ; gas installation, North-Eastern Gas Bd. ; Tarmac service road, W. and J. Glossop, Ltd., York ; sanitary fittings, Shanks and Co. ; facing bricks, Wray and Sons, York, and Facing Bricks, Ltd. ; radio and television, York Relay Services (1934), Ltd. ; telephones, P.O. Telephones, York ; Bendix washer, A. E. Challenger and Co., Ltd., York.

FLATS FOR THE CITY OF YORK

French Influences in English Architecture

IT was often believed that architecture was the natural product of a country, generated by local and natural factors such as geographical conditions like climate and regional materials and traditions, said PROFESSOR H. O. CORFIATO, F.R.I.B.A., S.A.D.G., F.S.A., when he gave a lecture to the Franco-British Society on "French Influences in English Architecture" at the Bartlett School of Architecture on January 22.

In the shaping or formation of a style, or national architecture, other factors remotely connected with local conditions played a far more important role, he continued. Intellectual or religious movements, prejudice or imported ideas contributed considerably to the formation of an art. Progress in civilisation meant for architecture the opening of channels or routes through which extraneous influences flowed and moved from one country into another. Architecture, he said, recalled periods as well as the achievements of individuals; changing taste was manifest at all times in all countries, and England was no exception.

The following extracts are taken from Professor Corfiato's subsequent remarks:

In trying to determine the share that France has had in the shaping of English architecture, one should ascertain the exact nature of those influences which affected the growth of architecture in this country and the way imported ideas established themselves. France may not always be the originator of certain ideas, but in many cases she is the vehicle which spreads them, and by French influences in architecture it is meant all that has come from the other side of the channel, and obviously in the course of history many events, not always indigenous, contributed to the formation of French architecture. Indeed, French architecture itself is the result of many influences, such as Roman, Hellenistic, Greco-Syrian, Burgundian, Frankish, Norman, Byzantine, Islamic, etc. Merovingian, Carolingian and Romanesque architecture were the outcome of various evolutions, and English architecture reflects all these contributions through the medium of French art. French influence spreads either through the imposition of a style, as in the case of building after the Norman Conquest, or the importation of French ideals through religious orders; Benedictine, Clunisian or Cistercian.

Travel has played no mean role. In the seventeenth and eighteenth century when English artists travelled or studied in France, taste in matters of art in England came under the spell of French architecture, so much so that French artists were welcomed in England, and the names of Tijou, Le Nôtre or Servandoni are witness to this state of affairs.

THE NORMAN CONQUEST

The Norman Conquest had a far-reaching influence on the development of architecture in England. Within a few years of the arrival of William the Conqueror, Anglo-Saxon architecture ceased to be, and all building was regulated on systems coming from across the Channel. The ground had already been previously prepared by Edward the Confessor, whose pro-Norman tendencies favoured the installation of foreigners in English dioceses. In 1070, Stigand, the Primate, and all Saxon bishops were replaced by Normans who often hailed from other parts of France. Benedictine influences were already apparent in the building of the Abbey of Westminster. The new ideas that the Normans brought were representative of all France, as they had been in contact with many lands outside Normandy through visitations or incursions and pillaging. Thus the founding of the Duchy of Normandy in 911 occasioned a revival of building with churches roofed in stone; the establishment and development of what is known as the Anglo-Norman Style owed much to St. William of Volipiano, Abbot of St. Benigne, who organised monastic life in the Duchy.

Benedictine monks from Dijon settled at Fécamp in 1002 and Jumièges and Bernay came under Burgundian influence, a contributing factor in the formation of Gothic art. French architecture followed the Conqueror in its trail, and one of its most active propagators was Lanfranc.

CHURCH DESIGN

Vaulting and clerestory lighting, as well as the triforium, were soon adopted in church building. Indeed the groin vault was already familiar in France as evidenced at St. Etienne and St. Nicholas at Caen, and N-D-sur l'Eau at Domfront. The Benedictine church plan, as crystallised at Rouen and Caen, presents an apsidal choir, side aisles, ended with apses or niches, a transept with apsidal chapels, and a tower over the crossing of the transept and nave. Western towers were a frequent feature too, as evidenced at Bernay Abbey, Bayeux, and St. Ouen Abbey, Rouen. Some of these features matured perhaps in the tenth century in the neighbourhood of Blois, as may be seen in the transept gallery and three eastern chapels at St. Solerne. These features appeared in England soon after the Norman invasion. The ambulatory plan can be traced as far inland in France as St. Martin at Tours, or Chartres Cathedral in the eleventh century. Indeed, some of these features existed in earlier religious buildings, such as the cathedral at Clermont Ferrand, which was begun in 946, or the abbey at Tournus about 980. Very probably the planning of the ambulatory plan was introduced directly by the French monks from Marmoutier, near Tours, who settled at Battle. As a matter of fact, all the bishops of the early conquest period were Normans, and the reconstruction of English cathedrals was carried out on French lines. Even the only remaining Saxon, Bishop Wolfstan, followed the general example, and thus we find in England that all the early church buildings reproduced structural features common in French religious architecture. Such is the case at Canterbury, Norwich, Ely, Winchester and Christchurch. The departure from these traditions, which was bound to come as a reaction, may be seen in Durham Cathedral.

English medieval architecture, in addition to structural themes, owes some of its ornament, too, to importation from France. The Chevron or Zigzag is perhaps the best known. The billet ornament, the diaper and the embattled ornament come from France too, the latter to be found in two of Caen's churches. In England examples of these types of ornament are to be seen at Lincoln Cathedral, Durham Cathedral and at Kirkstall Abbey, amongst others. Figure sculpture was imported from the south of France by the Cluniacs some time during the twelfth century.

THE RENAISSANCE

Events in England in the sixteenth century were not very favourable for the spreading of the new movement, the Renaissance. Indeed, towards the end of the century in 1580 the growth of building was restricted by proclamation and Act of Parliament. The elements of the new architecture, however, were introduced sporadically by Italian craftsmen and French artificers, often the spirit of the Italian Renaissance being spread by French artists; thus we find De Caux, a Gascon, teaching drawing to Prince Henry. Dutchmen or Germans made their contribution too, the latter, however, towards the end of the Elizabethan period, confining themselves to the making of monuments, chimney-pieces and other minor works. Travel abroad and the production of books on architecture favoured the new style as practised in Italy and France. John Shute, John Thorpe and Inigo Jones studied abroad.

An important element in architecture—the staircase—which since Norman times had been of the cork-screw type, under the influence of France, changes in 1556, as seen at Burghley, Lord Burghley being not only a notable builder but also a great collector of published books on architecture. The building of Hampton Court by Cardinal Wolsey, and Nonsuch near Cheam in 1557, are but the counterparts of French equivalents. Holdenby House in Northamptonshire, built for Sir Christopher Hatton, with a Court of Honour in the French manner and arrangement of vistas, and a second spacious court, is but an example where French taste and devisement are points of note which were much praised by Sir Thomas Heneage at the time (1563). Mansions of that period, though Italianate, are seen through French eyes, the great number of large windows systematically spaced according to French rule introducing a new horizontality in the design of buildings. The medieval tradition overlaid with imported and little understood Renaissance garnishings was finally overcome by Inigo Jones, who, by establishing the Renaissance on firm ground in a masterly way, paved the way for the coming of Sir Christopher Wren. Wren lived in a period of great craftsmen, many of whom were foreigners: Grinling Gibbons, a Dutchman working in the Louis XIV manner, Tijou, a Frenchman,

Laguerre, etc. We have much information on Wren's contact with France.

During his stay in France, he collected many prints, which from the point of view of documentation, as every architect knows, were of the greatest value. There is no doubt that he was well acquainted with the book on the Orders by Freart de Chambray. As a matter of fact, Wren's library which is now at All Souls, Oxford, contains most of the Italian and French books published at the time, and these Italian and French influences are obvious in some of Wren's monumental work. While in Paris he met most of the then known architects: Bernini, Mansart, Le Vau, Gobert, Le Pautre, and Le Quintinye, the Gardener of Versailles, as well as Le Notre. Wren visited and studied some of the most famous hotels and mansions such as the Hotels de Sauvignon, Salles, Mayenne, d'Avaux, the Place Royal, the domed churches of Paris, the octagonal dome of the Salpetrière, and especially the domes St. Marie by Mansart which to a great extent influenced one of his studies for St. Paul's, known as the favourite design.

INFLUENCE ON ST. PAUL'S

There is a certain similarity in the design of the dome of St. Paul's with that of the Invalides. The latter was built much later than St. Paul's but a suggestion has recently been made that both Wren and Mansart knew the design by Francois Mansart for the Valois Mausoleum of St. Denis. Wren's design for a mausoleum for Charles I is very French in character and many of his designs for elevations to be found in the All Souls' collection show undoubtedly Morat's influence. As a matter of fact, every great artist consciously or subconsciously benefits from precedent, as the past always contributes to the formation of a new style. Ward comments on the controversy over Wren's colonnade at St. Paul's. The arrangement is a classical one in French architecture, as there are examples by De Brosse at St. Gervais, Derand, for the church of St. Paul's, Francois Mansart at the Val de Grace and Le Mercier at the Sorbonne. There is no doubt about the design of the Sheldonian theatre where the Hermæ obviously were inspired by the precedent of Fontainebleau and Vaux le Vicomte. The horizontal rustications so often used, and the Mansard roofs, need no comment as to their origin. The general massing of Hampton Court, his plans for the Palace of Winchester which recall the Cour de Marble, as well as his first design for Marlborough House, show that while the expert on analysis of design may prove the obvious it is very difficult, however, to determine exactly a particular origin.

The succeeding generation of architects, however, brought a reaction and in the eighteenth century Wolfe and Gandon proclaimed their ability to convince posterity "that architecture was brought to as great a point of perfection in this Kingdom as ever it was known to be among the Greeks and Romans," and that if architects in England were not inferior to the ancient, they far surpassed their contemporaries of every other country.

By the middle of the eighteenth century Palladianism reigned supreme. Lord Burlington not only collected Palladio's drawings, but never missed an occasion to propagate his love for Palladio. On learning that the Court of Common Council had resolved to build the Mansion House he sent to the Council an original design by Palladio. It is not known whether Dance had been consulted by the noble Lord, but a member of the Council inquired whether Palladio was a Freeman of the City, and objections to the design of the elevation were raised on the assertion that Palladio was a Papist. It is to be noted that no plan was discussed at all. Sir William Chambers seems to be an exception to this state of affairs. Undoubtedly influenced by the grace and refinement of the Louis XVI style, he journeyed to Paris where he studied under the celebrated Clerisseau and "acquired from him a freedom of pencil in which few excelled." In 1774 Chambers revisited Paris, when he met Le Roy, Dewailly, Le Doux, Peyre, Antoine, Perronet, Soufflot, and others. As a matter of fact, Clerisseau played an important role in the development of English architecture. He influenced Robert Adam whose friend he was in Rome, and with whom he visited Spalato. Together with Piranesi all three studied the antiquities of Rome. Catherine of Russia bought a portfolio of his drawings, which she presented to Cameron when the latter received commissions from the Empress. Somerset House has many features which are due to Chambers' stay in Paris. "The curious may consult Blondel's Cours d'Architecture where the greatest part of opinions and practises are enumerated and their merits sincerely weighed," so wrote Chambers. Horizontal coursing, as practised in France, attracted his commendation as well as d'Aviler's methods in the design of balustrades, and Le Brun's methods in determining the proportions of arcades. Servandoni visited England and the authorship of the design for Wyndham House (with Morris) still remains unsolved.

In the nineteenth century, the influence of the Ecole des Beaux Arts is felt either directly or indirectly through America. Le Doux's works did not fail to impress Soane while Labrouste's bold experiments found an echo amongst his contemporaries in England. Others visited Paris to study there. Phené Spiers was a pupil of Pascal in the 'sixties. He was followed by Sir John Burnet, R.A., and later by Arthur Davis, R.A., and many others. Hotels, blocks of offices, and banks in London testify to this infiltration of French architecture. A street or circus attempt a more or less successful adaptation of French principles in design, whilst amongst the younger generation Le Corbusier's gospel finds many willing adepts.

The conclusion may be that the channel hardly divides two countries, the history of which has so many points in common. If in this essay an attempt has been made to appreciate the French contribution to the formation of English architecture, the story of Anglo-French relations in architecture is by no means complete, as France on her side has gained much from her English neighbours.

BOOKS

∴ *Books reviewed in these columns may be obtained on application to the Book Centre, "The Builder," 4, Catherine-street, Aldwych, W.C.2. Cash (which should include 6d. to cover postage and packing) should accompany the order.*

THE LAW RELATING TO BUILDING AND ENGINEERING CONTRACTS. By W. T. Creswell, K.C. 5th Edition by T. R. D. Davies. (London: Sir Isaac Pitman and Sons, Ltd.) Price 30s.

RATHER more than thirty years ago *The Builder* published a series of articles by the late W. T. Creswell on the law of building contracts. These articles appeared to meet a definite need, and were followed soon after by the publication of the first edition of what may now be regarded as one of the standard works on building contracts. Subsequent editions appeared in 1936, 1940 and 1946, and now a fifth edition has been published under the editorship of Mr. T. R. D. Davies, barrister-at-law, and a former official of the National Federation of Building Trades Employers.

Mr. Davies has been wise in not attempting to interfere unduly with the work of the original author, and the book retains its character of a compact and practical guide to architects, surveyors, building contractors and others interested in building enterprises. This was, I think, a sound decision on the part of the learned editor; there are larger and more detailed books on building contracts, but the value of the present book undoubtedly lies in its appeal to members of the building industry as a general text-book. Among the new material included are the revised 1950 R.I.B.A. standard forms of contract and the latest edition of the Institute's "Scale of Professional Charges." The 1952 amendments to the standard forms of contracts appeared after the book was published.

In commending this new edition to members of the building industry, one would like to make a suggestion for future editions. That is, that a chapter should be included on the assignment of contractual rights. As was pointed out in a recent article in *The Builder*, the assignment of contract moneys is still fairly common, and a brief account of the rules governing such assignments would be a most useful addition to this book.

A. E. T.

BOOKS RECEIVED

BUILDING SANITATION. By L. B. Escritt. (London: Macdonald and Evans, Ltd.) Price 25s.

DYNASTY OF IRONFOUNDERS. By Dr. Arthur Raistrick. (London: Longmans, Green and Co.) Price 30s.

ESSAY COMPETITIONS

TITLES of their essay competitions for the current year have been announced by the Royal Sanitary Institute. Two prizes are offered as follows: The John Edward Worth prize of £60 for an essay on "Internal planning layout and equipment of dwellings to reduce domestic work without loss of efficiency and within reasonable expenditure" and the John S. Owens prize of £15 for an essay on "The location of industry having regard to the health of the people." Applications to the secretary of the Institute, 90, Buckingham Palace-road, S.W.1.

Prestressed Concrete

MR. O. J. MASTERMAN'S LECTURE AT THE R.I.B.A.

PRESTRESSING provided the engineer with a means of using his materials more efficiently than heretofore when designing in concrete, said MR. O. J. MASTERMAN, B.Eng., A.M.I.C.E., A.M.I. Struct.E., in a lecture which he gave at the Royal Institute of British Architects on December 16. Prestressing had two advantages; first, it permitted of substantial reductions in the amount of steel and concrete required, and this in turn led to savings in cost. We take the following extracts from Mr. Masterman's remarks:

The saving in concrete has particular relevance in relation to precast components because it saves handling and transport costs; it also enables concrete structures to be lighter and more elegant, and is often valuable for bridge and floor work by reducing headroom. The saving in steel is very great and a prestressed structure will usually contain about one-fifth of the amount of steel in the corresponding reinforced concrete structure, and perhaps one-tenth of that in a steel structure. This has particular importance in this country at the present time when steel has become scarce and costly; and it is the factor which has contributed most in the early stages to establishing prestressed work here. These substantial steel savings are not, however, fully reflected in the cost because special high-tensile steel must be used, which is about two and a half times as expensive as mild steel. In the case of concrete, where material savings of perhaps 30 per cent. may be obtained as compared with reinforced concrete, this again is partly counter-balanced in the final cost by the higher quality concrete which must be used, and by the stressing operations. It can, however, be said that prestressed structures are finding no difficulty in competing in cost with other constructions.

THE MAIN PRINCIPLE

The essential principle of prestressing is to apply compressive stresses to the structure *before* it is loaded, in such positions and of such magnitudes as to neutralise the tensile stresses which the loading will cause; hence the name "prestressing." These compressive stresses are externally applied and the prestressing technique is concerned with the means of applying and maintaining them, for they have to remain in being, and active, during the whole life of the structure. They may be imposed by such simple mechanical means as jacks or screws, or, simpler still, by Freyssinet's famous flat jack. This ingenious device is merely two thin mild steel plates which can be separated by introducing oil or water under pressure between them. The total force exerted is the area of the plate multiplied by the hydrostatic pressure employed. By this means, a small hand-operated pump can, in a few minutes, exert a force of 2,000 tons on a selected part of the structure. These jacks have been used for prestressing long concrete tunnels, for releasing the form work under arch bridges, for adjusting the pressure on counterforts and large dams and for correcting thermal and shrinkage movement in bridges. They also provide a ready means of measuring the actual force exerted by the structure at the points where they are used.

However, the most common and almost universal means of applying the required external force is through the agency of high-tensile steel, generally in the form of wires, cables or rods. There are two main ways in which the steel can be used to impose the desired permanent compressive stress on the concrete. In the system known as *pre-tensioning*, the wires are stretched the required amount to induce in them a very high tension; the concrete is then cast round them and after it has hardened the tension is released. The bond between the concrete and the wires is strong enough to prevent slip and so to hold the wires permanently tensioned. The tensile force must, of course, be balanced by a corresponding compressive force in the concrete. This is the prestress. To those who feel that at some future date the wires would start to slip the reply can be made that there are several special factors ensuring good bond. One is the small diameter of the wires; another is the shrinkage of the concrete, which is of high quality, and a third is the radial expansion of the wires when the pre-tension is released. Moreover, large prestressed structures have now been giving satisfactory service for close on 20 years. Pre-tensioning is mainly used for the smaller factory-made components, such as joists, slabs, beams and piles.

In the other system known as *post-tensioning*, the concrete structure or member is first cast and hardened, holes being left in positions where cables will be placed. When the concrete is strong enough, the cables are then fed through these holes, anchored at one end of the concrete, and then stretched and anchored at the other end, the concrete itself providing the reaction for the stretching force. In very long structures, such as bridges, the stretching may be done from both ends simultaneously; as soon as the cables have been anchored, the structure is ready for use. Usually the cable duct is grouted and the anchorages are concreted in. Post-tensioning is used for all large components and structures.

In pre-tensioning no proprietary system is used, although the method is sometimes referred to as the Hoyer system because Hoyer, in Germany, before the war, was the first to make important commercial use of this method.

There are three well-known methods of post-tensioning available in this country. They are the Freyssinet, Magnel and Lee-McCall systems. Each depends on special equipment for doing the tensioning and anchoring. In the Freyssinet system the cables are usually made up of twelve wires which are tensioned by a special jack and anchored into heavily reinforced concrete cones by means of a concrete plug. In the Magnel system the cables are made up of any suitable number of wires, but these are tensioned two at a time with a light jack and anchored with steel wedges into steel plates. In the Lee-McCall system high-tensile bars are used instead of cables and these have positive anchorages at each end in the form of special nuts and threads.

The wire normally employed for tensioning is 0.2 in. in diameter or less for pre-tensioning systems and has an ultimate strength of 100 tons per sq. in. and upwards. For post-tensioned cables it is usual to use wire of 0.2 in. or 0.276 in. diameter with ultimate strength around 100 tons. The bars in the Lee-McCall system have an ultimate strength of 70 tons per sq. in. For pre-tensioning systems the smaller the diameter the better the bond. Diameters as large as 0.2 in. are used, but in this case they are often indented or specially treated to improve the bond.

MATERIALS

The special high-tensile steels have been mentioned and arrangements have been made between the Government and the manufacturers which are ensuring satisfactory supplies. The wire is of the same kind as is used in pianos, Admiralty cables, crane bonds and the like, so no new process is involved in the manufacture. In prestressed designs the steel is usually worked at a little more than half its ultimate strength. To obtain the best results it is essential to have a high-quality concrete to match the high-quality steel. Working stresses are usually taken at about 2,000 to 2,500 lb. per sq. in., or about double what is normally used for reinforced concrete. Here, again, no new process is involved, the higher strength being obtained by reducing the water content of the mix to the appropriate figure and ensuring that the vibration is adequate to obtain full compaction of the concrete in the moulds. In practice, cube strengths for prestressed work at one month old are seldom less than 6,000 and often range up to 10,000 lb. per sq. in. or more.

It has already been said that prestressing enables the concrete engineer to use his materials more economically, and this gives substantial savings in both steel and concrete. It also makes possible shallower beams and larger spans and these are two advantages which have already been very largely exploited in bridges and buildings. In beam and girder work it is roughly true to say that, as compared with reinforced concrete, maximum economic spans can now be doubled. The prestressing gives the material special characteristics quite distinct from those of reinforced concrete. In practice, this is best exemplified by the resilience or springiness of a prestressed member like a plank, which can be flexed in much the same way as a timber plank. This is due to the stressing force which is always present and which closes cracks formed by overloading as soon as the overload is removed and so restores the deflection. This characteristic has great value for precast units which can be handled, and indeed mishandled, with much more safety than reinforced concrete units and which require no special handling steel to be incorporated. The absence of tension in

prestressed structures also makes them particularly suitable for containing liquids, and they are in fact much used for reservoirs, water towers and large diameter pipes. Tests have shown the material to have an excellent fatigue strength, which has been borne out in practice by its successful use in railway sleepers and transmission line poles.

One particular advantage which is likely to be much more exploited is the possibility of making prestressed components and even whole structures out of short precast sections of concrete. These sections have holes cast in them through which the cables run, and when they are assembled in line the cable tension holds them together and makes them act as a single unit, which will support heavy loads and high shear forces. This method of prestressing enables large structures to be assembled at one point, the components of which have been manufactured at another, but, being reasonably small, are easily transported to the assembly point.

It is rather interesting to note that in the reverse sense, the advantage of being able to stress very long components is also exploited in concrete road slabs where a 600 ft. length may be cast without a joint and may be expected not to crack. It is likely that this will be proved an important application of prestressing since it appears to solve the problem of joints in road slabs at a cost comparable with present methods.

RELATIVE COSTS

It is already clear that prestressed concrete is having little difficulty in holding its own on costs. For many years now numerous Continental structures, and bridges in particular, have been prestressed where tenders were in open competition with both reinforced concrete and steel. In this country the picture is much the same. The case of prestressed roads has already been mentioned and Crawley New Town is an instance where, after an experimental slab had been put down, the prestressed tender for subsequent work was lower than tenders for the alternative design in reinforced concrete.

The large quantities of prestressed floors that are being used to-day in flats are evidence that costs are competitive even though in some cases the prestressed suppliers obtained a footing while the shortage of mild steel was at its worst. This view is confirmed by tenders for multi-storey flats recently submitted to the L.C.C. by the principal flooring firms. The areas concerned are substantial and all tenders were made on identical inquiries. The average prices of firms tendering for prestressed floors came out at the same figure as the average of the hollow tile firms and about 8 to 10 per cent. cheaper than that of the precast concrete firms.

It is less easy to compare the cost for general buildings where, up to the present, prestressing is only being applied to part of the structure ; but the hangar buildings of the British European Airways at Heathrow are an example of a structure covering nearly 10 acres in which nearly all the roof framing and a considerable part of the roof slab is prestressed, and for this building alternative designs in steel and in reinforced concrete were considered before the prestressed scheme was chosen. The bus garage at Bournemouth has prestressed shell roofs of 150 ft. span and the engineers considered that the prestressing of the concrete had secured a saving of 20 per cent. in the cost of this building.

It may be said that if at this early stage of development of the technique in this country such cases can be cited, there is little doubt that this material will be regarded as highly competitive in the near future.

This technique has come to stay. It will stay in its own right by reason of the valuable benefits derived from it at reasonable cost. It is, comparatively speaking, in its infancy, but it is clear that there is a tremendous field for development in front of it. It is not a substitute for reinforced concrete, but rather a development of it, better fitted than reinforced concrete for building elements subjected to tension or bending.

To the architect, it will be more useful when the means of dealing with continuous constructions, such as monolithic building frames, is more fully worked out and practised : this is the subject of much thought and development at the present moment. Already it has been used in many large and important structures throughout the world.

ATMOSPHERIC POLLUTION

Removal of Sulphur Gases

THE following conclusions were reached by the chief chemist for the British Electricity Authority, MR. R. LLEWELLYN REES, F.R.I.C., M.I.Chem.E., in a paper on "The Removal of Oxides of Sulphur from Flue Gases," which he presented to the Institute of Fuel on December 17, at the Royal Society of Arts, John Adam-street, W.C.2 :—

"When all the factors are brought into consideration there are seen to be good reasons for believing that to discharge the gas hot, that is, unwashed, at reasonably high speed, from tall chimneys, is, according to present knowledge, the best answer to the problem of pollution by sulphur dioxide emitted from power stations when normal fuels are being burnt. It should be possible, even at the least favourable wind speed of about 10 m.p.h., to keep down the local ground concentrations of sulphur dioxide in this way to levels that are neither obnoxious nor injurious to human beings, nor even harmful to plants, some of which are more sensitive to sulphur dioxide than human beings. Washing the gas may cool it enough to undo much of the good done by removing the sulphur.

"Although this solution of the problem does not greatly affect the general level of pollution in the atmosphere by sulphur dioxide, which is believed to be responsible for some of the corrosion of metals and stonework, the overall cost to this island community, calculated from the estimates of the Egerton Committee, is less than that of applying the Battersea gas-washing process and a good deal less than that of applying the cyclic lime process.

"The products of these two processes are wasted, in the Battersea process by design, in the cyclic lime process because cheaper calcium sulphate is easily obtainable elsewhere. Both processes therefore become more costly as the proportion of sulphur in the coal increases, so that they are not contrived for purifying gases derived from fuels of very high sulphur content. These gases can present new problems to the designer when, for reasons that are outside his control, he is unable to provide the extra chimney height that is required in order to disperse them satisfactorily.

"Processes in which a saleable product is recovered can be expected to become cheaper, or at least no more expensive, as the sulphur content of the gas increases. Unfortunately, owing to the fact that washing the gas causes it to reach ground-level nearer the chimney, it is only processes of the highest efficiency that can be tolerated at power stations, especially when the fuel contains a high proportion of sulphur. The problem will have a new aspect if more of such fuels are sent to power stations. The Fulham-Simon-Carves process, which is being investigated in small pilot plants, may provide a limited answer to it in the rather artificial and perhaps transitory economic circumstances of to-day, in which scarce elementary sulphur is degraded to the common sulphate radical for use in the manufacture of ammonium sulphate."

LICENCES FOR FACTORY BUILDING

Substantial Increase Expected in 1953

PRIVATE builders were not taking all the advantages now open to them, and could have the licences if they asked for them, said MR. A. B. GLASSPOOL, Clerk to Haltemprice U.D.C., at the annual dinner, on February 5, of the Hull Building Trades Employers' Association.

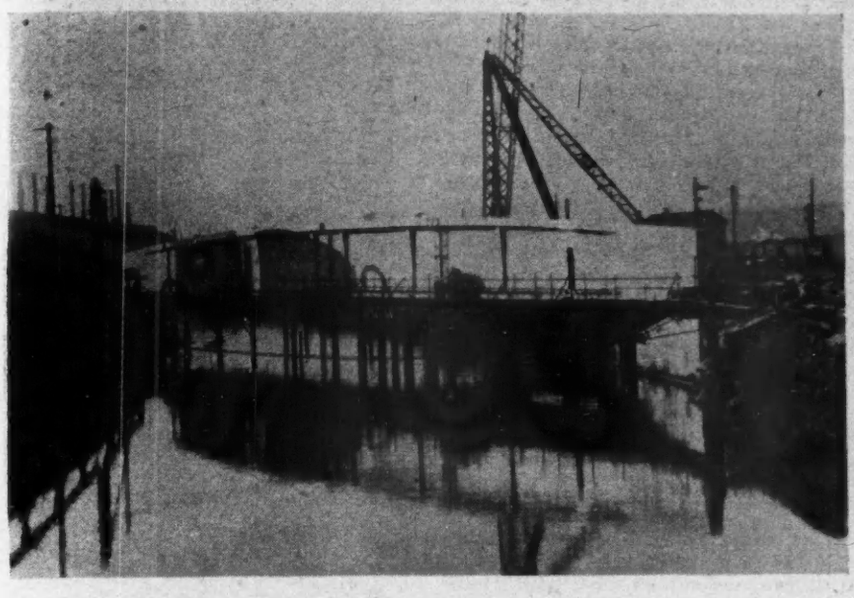
Mr. Glasspool asked "What would you do if local authorities said they were not going to build any more houses?" Builders, he said, would say that they dare not do it, but the local authorities were seriously concerned with the financial implications for ratepayers, who were involved for 60 years for every house built.

MR. GEORGE GROSVENOR, vice-president of the National Federation, announced that more factory building licences would be issued this year, enabling building work in private manufacturing industry to be about a third higher than last year. This had a particular significance in Hull, striving to cope with vast reconstruction and aided by blitzed cities' allocation.

MR. G. E. STEPHENSON, past-president of the Hull Association, said that licence limits had been raised substantially, the development charge removed altogether, and there was at least some chance of building houses more expeditiously. "These relaxations of control spring from more progressive policies adopted by the Government. They are welcome, but they do not give absolute freedom to the building industry, and we shall continue to press for the degree of freedom which is so necessary to our successful functioning," he said.

MR. ANDREW RANKINE, A.R.I.B.A., Hull City Architect, proposing a toast to the Hull Association, warned them to get rid of outmoded methods and to mechanise and improvise at least a bit. They should use more scientific methods and more modern materials.

Replying, MR. F. R. MIZON, president, said that in Hull they could compete on equal terms with outside builders. But if builders came into Hull from outside and paid 6d. an hour more, worked the men until six o'clock, and paid them until seven o'clock, then they could not hope to compete.



A general view of the bridge, which spans the River Don to connect the steelworks with the railway.

A PRESTRESSED CONCRETE RAILWAY BRIDGE AT ROTHERHAM

Believed to be the Largest of its Kind in the World

DONOVAN H. LEE, M.I.C.E., Consulting Engineer

THE new railway bridge across the River Don at Rotherham to connect with Messrs. Steel, Peech and Tozer's steelworks is believed to possess the largest single span of prestressed concrete for this type of bridge so far constructed, either in this country or abroad. The span measures 160 ft., and has a large skew of 58½ degrees; it carries a single line of track joining together industrial sidings on each bank of the river. When in flood, the River Don has been known to overtop the banks on this section, and it has accordingly been necessary both to raise the approach tracks on each side of the bridge to allow the underside of the deck to be kept above flood level, and to use a shallow deck thickness.

Prestressed concrete construction has properties attractive for railway use, particularly in the provision of a structure free from cracks, while the high-grade concrete employed results in low maintenance cost. In addition, the small variations in stress in the prestressing steel between the dead load and full load conditions provide a high resistance to impact and fatigue.

If a central pier had been provided in the river the obstruction to the flow so caused would have required a local widening of the waterway. It was found to be more economical to provide a single-span structure, the extra cost of the main girders being less than the cost of the central pier and river widening. To keep the raising of the approach tracks to a minimum a very shallow construction depth was required, and this was met by a thin deck slab spanning between deep parapet girders.

The plan, elevation and cross-section of the bridge are illustrated, the main girders being 4 ft. 0 in. wide and 12 ft. 6 in. deep at the centre of the span, reducing to 9 ft. 0 in. at the supports. They are spaced at 17 ft. 6 in. centres and the deck slab spanning between is 10½ in. thick. Web stiffening ribs are provided at intervals between the deck slab and the compression flanges of the girders.

The bridge was designed for 20-unit live loading in accordance with normal railway practice, providing for a standard train with 20-ton axles at 5 ft. centres, plus a lower than normal impact factor of 17.4 per cent. in view of the low speeds operating. The large girder depth was provided in order to reduce the deflexion on the side of the deck opposite to the forward bearings of each skew abutment, and this also reduced the steel quantities, the exceptionally low total weight of only 28.4 tons of high-tensile steel bars being required. An additional 12 tons of mild steel bars were required as reinforcement, mainly as stirrups and in the top compression boom of the deck, while a further 20 tons of mild steel reinforcement was provided in the abutments. The end anchorage plates for the 337 high-tensile Macalloy bars had a total weight of 3.65 tons.

FOUNDATIONS

The abutments are of the cellular counterfort type in reinforced concrete supported on 8-in. by 5-in. R.S.J. piles, the foundations being taken down to a depth of 9 ft. below the river bed level. The concrete mix was 1 : 2 : 4 throughout with a maximum slump of 4 in. The deck beams are carried on rocker bearings on one side and provision for stressing and thermal movement is provided at the other end by means of two combined roller and rocker bearings.

DECK SLAB

With the girders spaced at 17 ft. 6 in. centres, the deck slab gives more than the normal side clearance for extra wide loads. Concrete buffers for checking overhanging loads are provided just clear of the bridge structure. The 10½-in. deck slab is pre-

The bridge girders before prestressing and concreting the gaps and (right) the free end bearings.

stressed by 1¼ in. alloy steel bars at 9-in. centres. The stress distribution in the concrete deck at mid-span, after allowing for full creep and shrinkage losses, is 1,783 lb. per sq. in. compression at the underside to 65 lb. per sq. in. tension at the top. With the dead load of the track the small tension is removed, and with full live load the stresses become 148 lb. per sq. in. compression at the underside and 1,610 lb. per sq. in. compression at the top.

A 2-in. by 1-in. deep drainage channel is provided on each side of the track and the slab is drained from this through weep holes in the deck at 6 ft. intervals. Concrete paving slabs provide a walking platform on each side of the track and below these is a service cable duct.

MAIN GIRDERS

The stress conditions in the main girders under dead load after full shrinkage and creep losses are compressions of 517 lb. per sq. in. at the top and 1,620 lb. per sq. in. at the bottom. Under full load and impact these become 1,864 lb. per sq. in. and 261 lb. per sq. in. compressions, respectively. In assessing these values the steel has been ignored, but the effect of its inclusion would be small.

The maximum shear at the ends of each beam under full load is 325 tons, giving a nominal maximum shear stress of 404 lb. per sq. in. The maximum principal stresses are 1,142 lb. per sq. in. compression and 142 lb. per sq. in. tension.

The calculated upward deflexion of the structure on applying the prestress was 1.99 in., which exceeded the calculated deflexion under full dead load of 1.24 in. A slight camber of 3 in. was provided in the span.

CONCRETE MIXES

For the bridge superstructure the mix was 112 lb. of rapid-hardening Portland cement to 162 lb. of sand with coarse aggregate made up of 145 lb. of ⅜ in. down and 235 lb. of 1 in. down to ⅜ in. The aggregate was almost entirely siliceous with reasonably rounded particles.

The specified 28-day cube strength was 6,250 lb. per sq. in., and the actual test cube strengths obtained varied between 7,000 and 8,000 lb. per sq. in., with occasional higher results. The water/cement ratio for the deck slab and the compression booms of the girders was 0.38, and this was increased to 0.42 at the bottom of the girders where the closeness of the rubber tubes forming the ducts and the secondary mild steel reinforcement made flow and compaction under vibration more difficult.

The concrete was compacted by a combination of one electric hammer on the formwork and two internal poker type vibrators, while the test cubes were compacted by electric hammer.

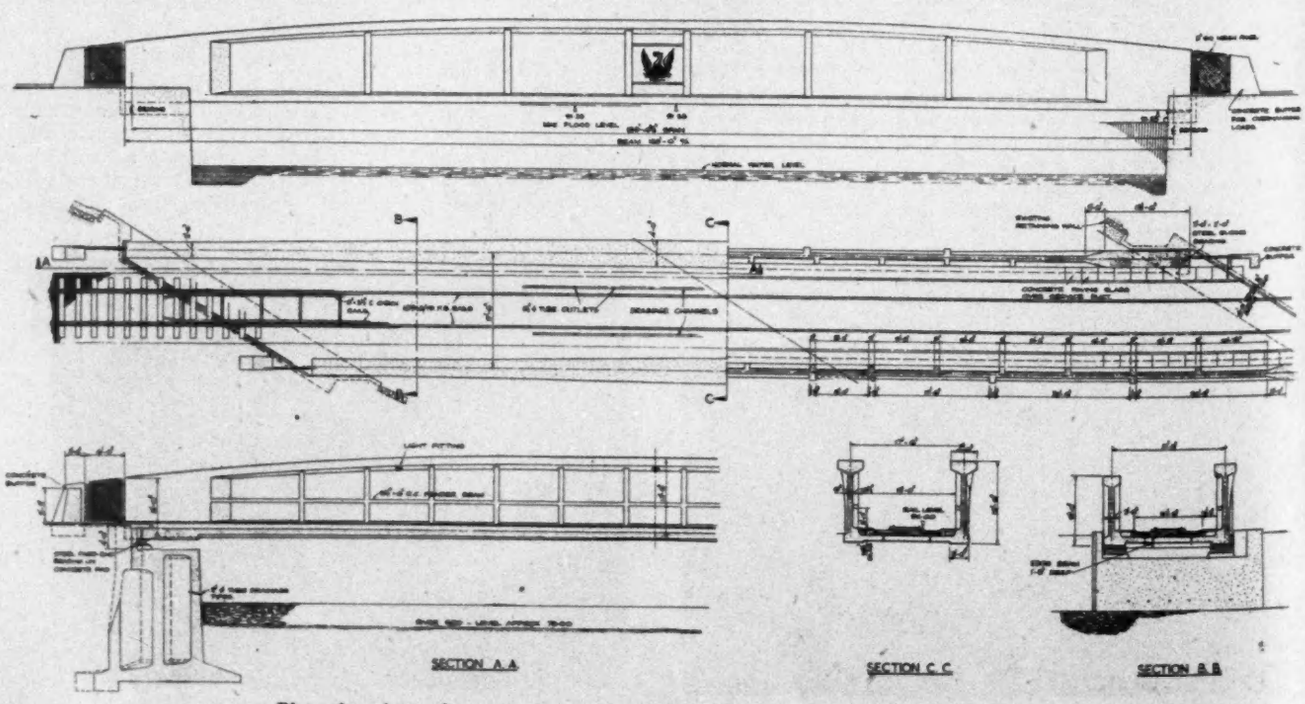
The ducts for the high-tensile alloy steel bars, 337 altogether, were formed partly with soft rubber tubes with a loose bar inserted and partly with inflated Ductube.

In order to insert the bar couplers, and to reduce shrinkage tension in the concrete before stressing, the girders and the deck slab were concreted in six sections with gaps between. These gaps were only concreted after the bars had been placed and the couplers correctly screwed on and wrapped to allow the necessary movement during stressing. The ducts were 1⅜ in. diameter minimum to take the 1¼ in. alloy steel bars and increased to 2½ in. diameter where couplings occurred. The bulk of the concrete thus had ample time to harden so that shrinkage and creep losses after stressing were lower than normal, and stressing of the girders was allowed seven days after concreting the gaps. The bars were grouted in immediately after prestressing and ½-in. diameter grouting holes had been provided leading into the ducts at each end of each length of bar.

The transverse prestressing of the deck in progress.

The accepted tender for the complete bridge was just under £34,000, of which £14,000 represents the cost of the abutments and piling and £20,000 for the staging and superstructure.

The design was prepared by Mr. Donovan H. Lee, M.I.C.E., consulting engineer to Messrs. Steel, Peech and Tozer, with whose steelworks the bridge connects. The general contractors were Messrs. George Longden and Son, Ltd., of Sheffield. The high-tensile alloy steel bars for the prestressed concrete were made and supplied by Messrs. McCalls Macalloy, Ltd., of Sheffield, and the bridge bearings were supplied by Messrs Joseph Westwood and Co., Ltd.



Plan, elevation and cross-sections of the bridge illustrating the method of construction.

HOUSING PROGRESS REPORT

Figures for 1952

THE Housing Progress Reports presented to Parliament on February 4, as White Papers* by the Minister of Housing and Local Government and the Secretary of State for Scotland show that the number of permanent houses completed in Great Britain during December was 23,395 compared with 19,322 in December, 1951.

The number of permanent houses completed in Great Britain during 1952 was 239,922 compared with 194,831 in 1951.

Detailed figures at the end of December were :—

PERMANENT HOUSES AND FLATS COMPLETED

	Great Britain			England and Wales		
	Post-war total to December 31, 1952	*Completions in December*	*Completions in November*	*Post-war total to December 31, 1952*	*Completions in December*	*Completions in November*
Local authorities†	990,765	18,486	17,396	858,882	15,234	15,005
Private builders	179,993	3,942	3,678	171,568	3,629	3,528
Housing associations ...	9,796	182	189	9,175	124	189
Government departments ...	31,311	730	841	28,639	655	791
War destroyed houses rebuilt—						
(1) Local authorities ...	9,352	11	4	8,562	11	4
(2) Under licence	35,054	44	35	34,673	34	35
Total	1,256,271	23,395	22,143	1,111,499	19,687	19,552

PERMANENT HOUSES AND FLATS UNDER CONSTRUCTION.

	Great Britain			England and Wales		
	Under construction at December 31	*Increase or decrease on September 30*	*September increase or decrease on June 30*	*Under construction at December 31*	*Increase or decrease on September 30*	*September increase or decrease on June 30*
Local authorities†	226,976	1,280	18,652	190,496	3,333	16,011
Private builders	38,579	2,205	5,374	36,139	2,507	5,321
Housing associations ...	3,843	1,504	327	3,690	1,427	349
Government departments ...	10,078	— 776	75	8,898	— 703	48
War destroyed houses rebuilt—						
(1) Local authorities ...	58	— 31	— 14	58	— 31	— 14
(2) Under licence	724	16	— 59	662	24	— 57
Total	280,258	4,198	24,355	239,943	6,557	21,658

HOUSING LABOUR FORCE

It is estimated that at the end of December, there were 277,700 men employed on the construction of permanent houses and preparation of housing sites in Great Britain. This figure does not include the number of men directly employed by local authorities.

SUMMARY OF HOUSING PROGRESS REPORTS

	England and Wales		Scotland		Great Britain	
	December 31, 1952	*September 30, 1952*	*December 31, 1952*	*September 30, 1952*	*December 31, 1952*	*September 30, 1952*
Completed houses and flats						
Permanent	1,111,499	1,051,791	144,772	135,651	1,256,271	1,187,442
Temporary	124,970	124,970	32,176	32,176	157,146	157,146
	1,236,469	1,176,761	176,948	167,827	1,413,417	1,344,588
Under construction						
Permanent	239,943	233,386	40,315	42,674	280,258	276,060
Tenders Approved (*a*)						
(local authority new houses)	1,129,637	1,059,906	177,199	172,028	1,306,836	1,231,934
Licences and approvals issued (*a*)						
(private builders new houses)	225,527	207,961	13,066	12,568	238,593	220,529
Tenders approved and licences issued (*a*)						
(new houses all agencies including rebuilt houses)	1,456,207	1,362,829	196,744	190,859	1,652,951	1,553,688

(*a*) Includes dwellings under construction and completed.

* Cmd. 8749 Housing Return for England and Wales, December 31, 1952. H.M.S.O., price 1s. 3d.
*Cmd. 8750 Housing Return for Scotland, December 31, 1952. H.M.S.O., price 1s.
† In Scotland includes houses built or being built by Scottish Special Housing Association.

PRIVATE HOUSE BUILDING

"Regrettable Lack of Co-operation by Some Local Authorities"

COMMENTING upon the housing figures for 1952, in a speech at Swinton, Yorks, on February 7, Col. Walter Elliott, M.P., said that, taking completed houses to let alone, an increase of 33,322 had been secured in the single year of 1952, an increase of some 19 per cent. This increase also should be continued and improved upon in the present year of 1953, since the numbers under construction, again only to let, had been increased by 36,568. In addition a notable number of new houses for persons wishing to build for themselves had been completed, and this figure also showed an increase for the year in progress.

"In some cases local authorities have given freely the licences necessary," Col. Elliott continued. "It is regrettable that some local authorities under Socialist domination have refused to co-operate in this section of the housing effort. It is unfair that residents in these areas should be denied an opportunity of housing themselves while at the same time dispensing with the large subsidies required for local authority housing, and this refusal to co-operate is certainly not in the best tradition of the relations between central and local administration."

Grants for Home Ownership

Mr. Harmer Nicholls, M.P., said that the Socialist assertion that it was not possible to build more than 200,000 houses had already been proved to be as "phoney" as most of their calculations. He was also speaking at Swinton.

Mr. Harold Macmillan had allowed the building industry to show that it was possible, given the essential freedoms from unnecessary interference, to produce a rising curve of house production. In 1952 no fewer than 239,000 houses had been completed and the number under construction for this year of 1953 was actually 280,000.

"Now we must turn our attention towards ensuring that the cost of this new building is kept within the bounds of the nation's finances," Mr. Nicholls continued. "We must do more than merely allow people to buy their own houses, we must encourage them to do so. We must relieve wherever possible the national exchequer and the local rates from subsidy payments already costing £40m. a year and rising by approximately £6m. a year. This total will soon reach proportions we simply could not afford, yet a policy of encouraging house ownership by a £300 grant towards cost of building would save millions of pounds over the 60-year subsidy period."

BUILDING WORKERS' WAGE CLAIM

Ballot on Strike Action

Leaders of the 18 unions affiliated to the National Federation of Building Trades Operatives decided at a meeting in London on February 5 to hold a ballot of their members on future action on wages. As stated in our last issue, a claim for a general wage increase of 6d. an hour has recently been rejected by the employers. The ballot will offer a choice of referring the claim to arbitration or taking strike action.

BRITISH STANDARDS

Wood Door Frames and Linings

THE BRITISH STANDARD for wood door frames and linings, first published in June, 1949, has been revised (B.S. 1567: 1953, price 4s.) in order to amend the specification for door frames with wing lights, as the window portion of such frames is now provided by windows and frames complying with BS. 644, Part 1, "Wood casement windows."

Sizes of frames and linings in this revised edition are based on the actual net size of the doors for which they are intended. Diagrams showing the frames and the timber sections from which frames and lining are made have been rearranged and revised, and tables of type and size references have been included.

Copies of this standard may be obtained from the British Standards Institution, Sales Branch, 24, Victoria-street, London, S.W.1.

Fibre Building Boards

A NEW EDITION of B.S.1142 (B.S. 1142: 1953, price 4s.), under the title of "Fibre Building Boards," has been issued to take the place of the war emergency standard published in 1943 with the title "Fibre building board for general building purposes." Fibre building boards are classified into seven categories, viz. insulating board, homogeneous fibre wallboard, laminated fibre wallboard, medium hardboard, standard hardboard, super hardboard and flame-retardant building board. Standard sizes, mean density, transverse strength and mean rate of water absorption are prescribed.

Appendices give details of the preparation of test pieces, the determination of thickness and density, the measurement of transverse strength, water absorption, and thermal conductivity. In addition, an appendix describes a method for measuring changes in the weight and dimensions of fibre building boards associated with changes in the moisture conditions of the environment.

All the tests have been revised and special attention has been given in the specification to flame-retardant boards.

Copies of this standard may be obtained from the British Standards Institution, 24, Victoria-street, S.W.1.

B.A.T.C. UNIVERSITY SCHOLARSHIPS

Applications from Building Apprentices Invited

APPLICATIONS are now being invited for the Welfare Fund Scholarships of the Building Apprenticeship and Training Council, tenable for three years at a university or a technical college offering a degree or a higher diploma course in building science. The scholarships are open to registered building apprentices who will be at least 17 years old by September 1 next. The closing date for receipt of applications is March 16.

It is for the principal of the educational establishment at which the candidate is, or has been studying, to forward the application. Recommendations must be made on Form AW 15, and sent by the principal to the local joint apprenticeship committee for comments. Some colleges have already received the forms, but further copies may be obtained from the Secretary, Building Apprenticeship and Training Council, Lambeth Bridge House, Albert Embankment, London, S.E.1.

Written examinations will be held on April 14 and 15 in London and other centres. The subjects are: English, Building Science, Mathematics and Building Knowledge. From the results of the written papers, selected candidates will be called to London for interview towards the end of May.

Since the inception of the Scholarship Scheme in 1947, 29 scholarships have been awarded. Ten scholars are now pursuing their studies at universities (eight at Cardiff, one at Manchester, one at Nottingham), and seven are at technical colleges. Twelve have completed their studies.

L.M.B.A.

Area Chairmen, 1953

THE London Master Builders' Association's area chairmen for 1953 have been elected as follows:—

Central Area No. 1.—Mr. A. A. Thorne, M.I.O.B. (J. Styles and Son, Ltd.).

Central Area No. 2.—Mr. J. Hodgson (Jarvis Bros (Builders), Ltd.).

Central Area No. 3.—Mr. F. Luker (Luker, Staff and G. C. Turner).

Central Area No. 4.—Mr. J. A. Stocking (J. Stocks and Sons (Builders), Ltd.).

Central Area No. 5.—Mr. A. B. Frost (A. B. Frost).

Northern Area.—Mr. K. F. Simmonds (C. W. B. Simmonds, Ltd.).

North-Eastern Area.—Mr. A. G. Cummins (Suburban Development, Ltd.).

North-Western Area.—Mr. J. S. Mamik (Circle Construction Co,, Ltd.).

Southern Area.—Mr. C. H. Runnalls (C. H. Runnalls and Sons, Ltd.).

South-Eastern Area.—Mr. H. C. H. Richardson (Herbert Richardson and Sons, Ltd.).

South-Western Area.—Mr. W. H. Goldman (Kenman Construction, Ltd.).

DIRECT LABOUR AT BIRMINGHAM

Corporation to Explore Possibilities for House Building

THE BUILDING OF HOUSES by direct labour was discussed at a recent conference of representatives of Birmingham house building and housing management committees and Corporation officials. ALDERMAN A. F. BRADBEER, chairman of the house building committee, who presided, said later that it was decided to seek information from local authorities which already built by direct labour.

"Initial consideration" was given to the possibility of establishing a direct labour house-building force. Alderman Bradbeer said the conference would adjourn till information from other authorities was available. Officials will compile a report from the information, setting out in full the methods of management used, and that report will be considered by the adjourned conference.

Alderman Bradbeer was asked whether any direct labour force established would be used to build on the very small sites, including bomb-sites, where it was difficult to obtain tenders from commercial builders.

He replied: "The approach to the new scheme would not be confined to building on the small and difficult sites. Any building scheme undertaken would have to be of sufficient size to enable the department to maintain continuity in its work."

TOWN PLANNING DECISIONS

Essex Gravel Pit Scheme: Minister Refuses Appeal

THE Minister of Housing and Local Government has given his decision following a public inquiry into an appeal by Mr. C. Stubbings against the refusal of the Essex County Council to allow him to develop a sand and gravel pit on some 11 acres of farmland, near Little Baddow Parish Church, Essex.

In the course of the inquiry, objectors to the proposed development, among whom were the National Trust and many private residents, said that it would "scar" the village, undermine the eleventh-century church of St. Mary-the-Virgin, cause wells to dry up and spoil other amenities. It was also contended that agricultural interests would be adversely affected and that heavy traffic to the pit would endanger public safety.

A witness for the Church Council prophecied that the church would collapse if Mr. Stubbings carried out his intention of digging a pit 50 ft. deep.

On behalf of the County Council, it was submitted that there had been too much spoliation of lovely things in the County of Essex by speculators, whose only interest was in what they would get out of it.

The appellant said he wanted the Little Baddow land to act as a reserve for his Sandon pit. The supply of gravel in mid-Essex was always below the demand, and still further demands had now been created by the new Hanningfield reservoir.

The Minister has rejected the appeal and states that permission must be refused on the grounds of loss of agricultural land and interference with amenities. He considers that, apart from the direct loss of food production which the excavations would cause, the management of the disrupted farm unit would become unduly difficult. He further considers that the charm of the village would suffer by the introduction of development involving considerable lorry traffic and noisy machinery close to the church and other buildings of historical interest.

Cookham Building Appeal Dismissed

THE Minister of Housing and Local Government has dismissed the appeal of Miss D. A. M. Prior, against the refusal of Cookham R.D.C. to allow land adjoining the Holyport-Braywick road to be developed for housing. The Minister states that there are other areas in Holyport and Maidenhead where more suitable building land can be purchased.

PERSONAL COLUMN

MR. D. POGANY, A.R.I.B.A., chief architect and development manager for Holoplast, Ltd., has just returned from Canada where he conducted important negotiations for this company.

MR. M. W. THRING, M.A. (Cantab.), F.Inst.F., F.Inst.P., has been appointed an assistant director of research of the British Iron and Steel Research Association. He will continue as head of B.I.S.R.A.'s physics department.

MR. R. BOOLE, A.M.I.Mech.E., has been appointed technical manager of Brynmawr Rubber, Ltd., and took up his appointment on February 2.

CORROSION, LTD., 16, Gloucester-place, Portman-square, London, W.1, announce that they have appointed J. H. SANKEY AND SON, LTD., Aldwych House, Aldwych, W.C.2, as the sole distributors of the "Glopane" cold galvanising and "Glopane Wet" zinc-rich paints in England, Wales and Northern Ireland. HENDERSON AND KRAY, LTD., 189, Pitt-street, Glasgow, C.2, have sole distribution rights for these products in Scotland.

IN PARLIAMENT

Historic Houses

ON February 6, MR. COLEGATE moved a resolution urging the Government to introduce legislation at the earliest practicable date to give effect to the objectives of the Gowers Report on Historic Houses. The recommendations of this report were, he said, that a statutory body, the Historic Buildings Council, should be created, and that owner-occupiers should be entitled, subject to conditions, to some tax relief. The Government should now put these recommendations into effect.

MR. ERIC FLETCHER pointed out that since the Gowers Report was published, nearly a score of our famous mansions had disappeared. He attributed this partly to the overlapping of the administrative functions of the Ministry of Works and the Ministry of Housing and Local Government. He urged that the Ministry of Works should be made the sole authority for the preservation of historic houses. He also suggested that local authorities might be persuaded to take over historic buildings which owners were unwilling to maintain, and use them for local administration, being given financial assistance for the acquisition and maintenance.

MR. ECCLES, the Minister of Works, revealed the fact that the Government had an Historic Houses Bill under consideration, but he could give no undertaking about when it would be introduced. That must depend on the amount of Parliamentary time available, but he agreed with the need to bring in legislation at the earliest possible date. The deterioration and decay and, in a growing number of cases, the demolition of the masterpieces of British domestic architecture, was assuming the proportions of a tragedy. The high level of taxation voted by Parliament had caused a revolution in the style of life of those who had occupied great mansions, and Parliament now wanted to make amends.

It had been indicated by the Chancellor of the Exchequer that he was willing to help in the preservation of historic houses. But the amount of cloth from which he could cut his coat was about £250,000 a year, and the House would realise that that seriously limited what could be done. That meant the general proposals of the Gowers Report could not be carried out: they would have to await more favourable times. The Ministry would have to put in hand a first-aid operation and consider not the full-scale preservation of the 2,000 houses envisaged in the report, but what it would cost to maintain 50 or 100 of the finest houses. The Treasury calculated that to carry out the Gowers recommendations for 2,000 houses in the top category would cost the revenue £10m. a year. That, he thought, was an understatement. He was authorised by the Chancellor of the Exchequer to say that he proposed in the next Finance Bill to make provision to enable chattels to be accepted in lieu of death duties in connection with historic buildings. It was intended that in the new Bill public access to the buildings would be a condition of getting financial assistance.

Mr. Eccles went on to point out that careful discrimination would be necessary regarding the 50 to 100 houses which could be looked after with the £250,000. The money must not be eaten up in administrative expenses. There would be pressure to spread the money too thinly. They would look after and keep in order that number and variety of houses which would give to posterity a fair sample of all styles and periods. Some would be large and some small; some would be in the countryside and some would be in city streets. He wished to give our own architects a chance—which they had not got now—to design masterpieces which some future House of Commons 200 or 300 years hence would vote money to preserve. He hoped that the Bill now being drafted would be regarded as non-contentious and would be passed at the earliest practicable date. It would be impossible to set up a new organisation without using up a great deal of money, but he hoped to have an Historical Buildings Council to advise him on the houses best qualified for financial aid.

MR. BLENKINSOP, from the Opposition Front Bench, said that the amount of money proposed was woefully inadequate. Were the Government considering compulsory purchase?

MR. ECCLES: We are considering no form of compulsion.

MR. BLENKINSOP, in expressing the desire of the Opposition to co-operate in getting the Bill through the House, said they much appreciated the work of the National Trust in this matter.

MR. HAMILTON KERR said that craftsmen could only keep their eye in by seeing good works of art. He had been horrified, when talking to some of the workmen engaged on the restoration of the House of Commons, to learn that many of their most skilled craftsmen were over 80 years of age, and that had the order to restore the Chamber come 10 or 15 years later it might have been impossible to obtain the same standards of wood-carving and masonry.

MR. J. DUGDALE described the Minister's statement as most disappointing.

MR. MOTT-RADCLYFFE said that the money proposed would only prop up the tottering fabric of many of the houses for two or three years. It was simply buying time.

VISCOUNT LAMBTON said this was the last chance this country had of preserving the houses as entities, and the intentions of the Gowers Committee could not conceivably be carried out with the sum of money proposed.

MR. CHANNON expressed sympathy with the people living somewhat pathetically in the smaller country houses who had to denude those houses of valued possessions in order to preserve the fabric. They should be helped.

MR. NIGEL NICOLSON said that the provision of such a paltry sum would cause universal disappointment. The Chancellor should be urged to increase it before it was incorporated in a statute.

VISCOUNT CRANBORNE said that what was needed was to retain historic houses of different points of interest, and that was one of the merits of retaining private ownership. What owners wanted was some means by which money was available for maintaining not only the structure of a house but also the interior decorations and, perhaps, assistance in maintaining the contents. A system of grants from the Ministry of Works was one way of doing that, but there should be alternative systems such as houses being passed to the National Trust and by owners allocating a lump sum in perpetuity for the maintenance of a house and its surroundings. Some owners would not wish to accept a block grant for the maintenance of their homes. Private owners carried out the work of maintenance more economically than a Government department.

SIR EDWARD KEELING was also critical of the Government's proposals.

MR. MOLSON, Parliamentary Secretary to the Ministry of Works, said that Opposition help in getting the Bill through would make the question of the time of its introduction easier. The question of giving financial help to local authorities in the adaptation of houses they took over was under consideration.

The resolution was agreed to.

Choice of Architects

On February 4 MR. VANE asked the Minister of Works what principles guided him in his choice of an architect when he had decided to build a new British embassy or legation in a foreign capital, or extensively rebuild existing premises.

MR. ECCLES said that the choice of an architect for a Government building overseas was determined by local conditions, such as climate and architectural tradition, and by the experience and talent available within the Ministry and outside. The aim in each case was to select an architect specially qualified to carry out the work, and the choice would fall on a Ministry of Works architect or on an architect in private practice either in this country or locally.

Requisitioned Property

On February 3 MR. VANE asked the Minister of Works what was his policy where the owner of property which was requisitioned during the war, and was still occupied by a Government department and was likely to be so occupied for a number of years, was anxious to sell to his department.

MR. ECCLES said he was normally willing to buy requisitioned buildings when they were in sound condition and were suitable for official use, provided they were offered at a reasonable price and were likely to be used long enough to justify the cost of purchase and adaptation.

MR. GERALD WILLIAMS asked the Minister of Works, how much property was still requisitioned under Defence Regulation No. 51; and how much had been released during the last 12 months.

MR. ECCLES said that approximately 3,000 buildings or parts of buildings were held on requisition by all Government Departments under Defence Regulation 51 on December 31, 1952. In addition nearly 82,000 houses and flats were held on requisition by local authorities for housing purposes. During the last 12 months, approximately 900 buildings or parts of buildings had been released by Government Departments and 5,200 houses and flats by local authorities.

Ancient Monuments in Scotland

On February 3, replying to Major Anstruther-Gray, MR. ECCLES said that the number of men employed in Scotland as custodians of ancient monuments and in similar duties was 102, of whom 10 were partially disabled. In addition 63 custodians were employed on a part-time basis.

Scottish Stone Building

On February 3, in reply to Mr. Patrick Maitland, MR. MOLSON said he expected that the report on the Scottish stone building industry, prepared by the Department of Scientific and Industrial Research, would be available on or about February 13.

London Building (Constructional) By-Laws, 1952

MAIN VARIATIONS FROM THE 1937 BY-LAWS—4

By M. C. G. AYRE

THE following notes have been prepared to indicate the main differences between the new L.C.C. building by-laws, which came into operation on January 1, 1953, and the old 1937 by-laws. The first article appeared on January 23.

In addition to the new by-laws (Publication No. 3790), copies of which can be obtained, price 3s. 6d., from the Council's publishers, Staples Press, Ltd., Mandeville-place, W.1; H.M.S.O.; or any bookseller, an Explanatory Memorandum has now been published (Publication No. 3796—price 1s.), which, apart from explanatory matter, contains useful Tables giving the sizes of timber to be provided to sustain various loads and a series of Tables of timber sizes for floor joists, roof and ceiling joists, purlins and rafters, suitable for two-storey dwelling-houses.

In the following notes, references to the 1937 by-laws are in italics.

Part IX—Fire-Resisting Construction

This is an entirely new part of the by-laws replacing many of the requirements contained in *by-laws* 68, 91, 137, 140, 141(3), 144, 148(2) *and* 150 of the 1937 by-laws. It will also supersede the requirements of the First Schedule of the 1930 Act and the regulations made under that Schedule.

The elements of construction (see definition in by-law 1.03) of a building are required to resist the action of fire according to the size and use of the building as classified in by-law 9.02. Requirements are also made (under by-law 9.04) for the separations between different tenancies, for the enclosures to lobbies, corridors, etc., used in common by the tenants and for the separations between parts of a building used for different purposes as classified in by-law 9.02.

Where, however, a building is in the same tenancy and is used for the same purpose, by-law 9.02(2) requires any wall, acting in effect as a sub-division wall and constructed for the purpose of keeping sub-divisions of the building within the limits of cubical extent or floor area given in the Classification Table, to have a fire-resistance of two hours. For example, assuming that a building of Class No. 2 has a cubical extent of 200,000 cu. ft. and exceeds 7,500 sq. ft. in floor area on any one floor, the elements of construction of that building would be required to have a fire-resistance period of two hours. If, however, a wall was provided to divide the building into two parts so that the cube of each part is 100,000 cu. ft., the elements of construction in each part need not have a fire-resistance period exceeding half an hour but the wall dividing the two parts would be required to have a fire-resistance period of two hours.

In addition to the requirements for elements of construction given in by-law 9.02, and the requirements for separations between different tenancies or uses, and for enclosures to all lobbies, corridors, etc., used in common by the tenants, given in by-law 9.04, requirements are made for landings and stairs (by-law No. 9.06), openings and doors in the enclosures and firechecks required by this part of the by-laws (by-law 9.07) and for borrowed lights in those enclosures. (By law 9.08.)

Forms of construction which are deemed to comply with the requirements of Part IX are given in Schedule VI. If any other form of construction is proposed, the Council must be satisfied that it is capable of withstanding the appropriate test given in B.S. 476 for the requisite period.

Part X—Flues, Chimneys, Hearths and Chimney Shafts

The new Part X covers the ground of *Part VII* and *by-laws Nos.* 132 *to* 136 (*inclusive*) of the 1937 By-laws.

Attention is drawn to the Note at the beginning of this Part with reference to the London Gas Undertakings (Regulations) Act, 1939, and the effect on this Part of the by-laws when the Gas Regulations come into force.

See also notes on the definitions of "chimney," "chimney shaft," "chimney stack" and "flue" under by-law 1.03.

By-law 10.01—A new by-law which permits "trade or gain" flues, which by the 1937 by-laws had to be surrounded with brickwork, to be enclosed with a flue-pipe.

By-law 10.02(2)—A new paragraph prohibiting a common flue to be used for venting an oil-fired appliance and also an appliance burning solid fuel.

By-law 10.04 (See *by-law* 136(3)—**Timber near flues, etc.**—(i) Combustible material must be kept 9 in. away from fluepipes to gas-fired appliances used for cooking food in hotels, restaurants, etc., instead of 4 in., unless the pipe is carried in a metal sleeve with packing. (See 10.04(2)(a)(iv).)

(ii) The distance of combustible material from flue pipes for other gas-fired appliances is reduced to 1 in. from 4 in. but where passing through combustible material, a sleeve is required. (See 10.04(2)(a)(v).)

(iii) Requirements are now made for wooden fireplace surrounds. (See 10.04(2)(c).)

By-law 10.05 (See *by-laws* 134, 135, 136)—**Flue pipes**—(i) Asbestos cement flue pipes are now permitted for all fires. (See 10.05(1).)

(ii) In addition to the materials in paragraph (1), flues for gas-fired appliances for cooking food in restaurants, etc., can be enclosed with 16 S.W.G. metal if for fish fryers or 20 S.W.G. metal for other appliances. (See 10.05(2)(a).)

(iii) All other gas-fired appliances can have flue-pipes of asbestos cement (light quality) to B.S. 567 or of sheet metal to B.S. 715. (See 10.05(2)(b).)

(iv) Pipes conveying fumes or vitiated air are now controlled wherever they are used instead of only in cookshops, etc., as in *by-law* 136(6) and are required to be of not less quality than asbestos cement to B.S. 567 or sheet metal to B.S. 715. (See 10.05(2)(b).)

(v) Flue-pipes to gas-fired appliances not acting in the same room as the appliance are now only required to be protected from damage to the satisfaction of the district surveyor instead of being required to be enclosed with 3 in. of incombustible material. (See 10.05(3).)

(vi) 10.05(4)(a) is a new requirement controlling the height of all flue pipes above the roof level. Only flue pipes to gas-fired appliances were previously so controlled.

(vii) The three methods of venting gas-fired appliances given in 10.05(4)(b) formerly only applied to geysers. (See *by-law* 135(3).)

(viii) External flue pipes can now be 6 in. instead of 4 in. internal diameter but must be fixed to the satisfaction of the district surveyor (See 10.05(5).)

(ix) External flue pipes, other than pipes to gas-fired appliances, must not be erected within 10 ft. of the public way. (See 10.05(6)(a)(ii).)

By-law 10.06 (See *by-laws* 132, 133, 119)—**Chimneys**—(i) The requirement in old *by-law* 133(3)(*i*) that a flue exceeding 80 sq in. in area must be enclosed by a chimney shaft has been deleted. (See 10.06(6)(7).)

(ii) In certain cases, under paragraph 10.06(7)(b), insulating bricks can be included in the thickness of material required to surround the flue where the flue exceeds 150 sq. in. in area.

(iii) The outside of every chimney which is less than 8½ in. thick is required to be rendered. (See 10.06(10).)

(iv) The position and course of every flue in a chimney is now required to be marked. (See 10.06(11).)

By-law 10.07—Chimney stacks—Para. (4) is new, requiring chimney stacks where passing through a roof to be protected against moisture.

By-law 10.09 (See *by-law* 132(7))—**Hearths in and before fireplace openings**—(i) Reference is made to the "constructional" hearth. (See 10.09(1).)

(ii) New requirements are made for the constructional hearth in 10.09(2) as follows:—

(a) The projection in front of the fireplace opening has been reduced to 16 in. from 18 in.

(b) In 10.09(2)(d), requirements for concrete hearths have been made to ensure adequate support and solid construction.

(iii) In 10.09(3), new requirements are made with respect to the installation of new fireplaces in existing openings, as follows:—

(a) The projection of the constructional hearth can be reduced to 12 ins.

(b) The projection of the new fire in front of the brickwork jambs is limited to 2 ins. unless the district surveyor is satisfied that the existing constructional hearth is at least 6 ins. thick and of solid incombustible material or, alternatively, a 3 ins. thick superimposed hearth is provided when the fire can project 6 ins. in front of the jambs.

(iv) 10.09(6), is new, permitting a hollow block floor to be deemed to be the constructional hearth required.

By-law 10.10—Curbs to hearths—A new by-law, giving requirements for curbs to constructional hearths where those hearths project less than 16 ins. in front of the fire.

By-law 10.11 (See *by-laws* 134, 132(5))—**Gas fires**—(i) Flues can now discharge into a ventilated roof space.

(ii) In party walls, single-flues can now be backed with 4 ins., of incombustible material; if flues are back to back, the normal double flue block can be built directly into the party wall.

(iii) The hearth is now required to project 12 ins. in front of the face of the surround against which the fire is fixed instead of 6 ins., but it can be ½ in. thick instead of 2 ins.

(iv) No hearth is necessary where the gas

fire incorporates in its construction a raised metal hearth.

By-law 10.12 (See *by-law* 138)—**Protection of floors over heating appliances**—(i) The old by-law has been completely redrafted and where protection is required, the amount of protection is based on the grate area of the appliance.

(ii) The protection to be provided is less onerous than the old requirements; instead of a 3 in. false ceiling, the ceiling can be lined with 3/16 in. thick incombustible material for appliances with a grate area not more than 2 sq. ft., or a 2 in. thick false ceiling where the grate area exceeds 2 sq. ft.

(iii) The requirements of this by-law are only applicable to combustible floors and roofs over appliances burning solid fuel or oil fuel.

By-law 10.14 (See *by-law* 133)—**Slabs under electric and gas appliances**—Slabs under electric or gas appliances are now required to be of such thickness that the floor temperature does not exceeed 150 deg. F.

By-law 10.15 (See *by-law* 136)—**Pipes other than flue pipes**—The maximum internal diameter can now be 6 ins. instead of 4 ins.

By-law 10.16—Chimney shafts (See *by-laws* 119-131)—(i) Bricks are now required to be "solid."

(ii) Batter is now to be not less than 2½ in. instead of 1½ in. in 10 feet.

(iii) Footings of brickwork are no longer compulsory.

Part XI—Miscellaneous

By-law 11.01—Roofs, storeys, inclination, coverings and gutters (See *by-laws* 147 *and* 148)—(i) The slope of *all* roofs is now controlled, not only those adjoining the external or party walls. See 11.01(2).)

(ii) Asphalt roofing and built-up roofing can now be used on any slope of roof provided the roof is otherwise constructed entirely of incombustible materials. See 11.01 (3)(b).)

(iii) Built-up roofing can now be laid on an insulating layer. (11.01(3)(b)(ii)(a).)

By-law 11.02—Projections from buildings (See *by-law* 143)—(i) The relaxation in sub-paragraph (1)(a) is now limited to dwelling-houses up to 3 storeys in height as against detached and semi-detached dwelling-houses irrespective of the number of storeys.

(ii) Mullions and windowframes of bay windows are excluded also.

(iii) By sub-paragraph (1)(b), copings, porticoes, porches, verandahs, balconies, balustrades and outside landings, stairs and steps are required to be incombustible, the only relaxation being for *subsidiary* outside landings, stairs and steps not affording the sole access to a building. Under the 1937 by-laws, porticoes, porches, verandahs, balustrades and outside landings, stairs and steps could all be of hardwood.

(iv) By sub-paragraphs (1)(d), (1)(e) and (1)(f), the restrictions of this by-law only apply to the *combustible* portions of a shop-front; previously they applied to *any* portion of a shop-front.

(v) Blind boxes are now deemed to be part of the shop-front.

By-law 11.03—Lighting and ventilation (See *by-laws* 141(1), 149)—(i) Habitable rooms, other than offices, can now be 8 ft. high instead of 8 ft. 6 in. in every storey except the topmost where the height can be 7 ft. 6 in. instead of 8 ft.

(ii) The tops of windows in the topmost storey are now required to be 6 ft. 6 in. instead of 6 ft. 3 in.

(iii) The flue area to provide permanent ventilation need now only be 20 sq. ins. instead of 50 sq. ins. (11.03(6).)

(iv) The area of the aperture or air-shaft communicating direct to the open air is now 20 sq. ins. instead of 50 sq. ins. (11.03(6).)

(v) For the purposes of this by-law, kitchens are deemed to be habitable rooms.

Schedules

Schedule IV is a new Schedule detailing the method of determining the crushing resistance of bricks and blocks.

Schedule V details the permissible gross features in timber and replaces the Schedule for 1,200 lb. f. Timber in the 1937 Timber by-laws.

Schedule VI: a new schedule detailing the forms of construction capable of resisting the action of fire for specified periods.

(Concluded)

THE BRICK SITUATION

Difficulties of Midlands Manufacturers

THE Midland Federation of Brick and Tile Manufacturers has issued a statement regretting that an invitation to a senior official of the Ministry of Works, London, to visit Birmingham has met with refusal. The purpose of the proposed conference, says the statement, had been to enable an exchange of views "on the spot" to take place between a committee of the manufacturers and the Ministry's London and Regional officials on the results of a survey which had disclosed the permanent loss of 40 per cent. of the pre-war brick manufacturing capacity of the region due to closures of works during and after the recent war and by exhaustion of clay reserves and other causes.

The Midland industry had delivered every brick which it had made in 1952 and at December 31, except for a minor quantity of specialised types, the unsold stock was negligible, and there had remained an unsatisfied demand in the latter half of 1952.

The majority of the existing works were at or near maximum production and the rising pressure of demand to which the industry had been committed by the Minister had given rise to anxiety and it was thought a conference of the nature proposed might be helpful.

The chairmen of the groups affected, the statement continues, had met and considered that this refusal underlined the continued disinterest of the Ministry in London, in the problems the brick industry had to face through causes outside its own control. The Ministry in London was making the mistake that the problem of brick production and supplies could be examined and assessed overall, whereas the efficiency of the building industry primarily depended on the existence of adequate local manufacturing resources and, as the National Federation of Building Trades Employers' annual report had pointed out, "surpluses of bricks in certain areas could not in general compensate for shortages elsewhere"; and that was due to the cost of inter-regional transportation of common bricks.

The question of restoring balanced manufacturing resources of common bricks geographically well sited to potential demands of the building industry should be, it was thought, the subject of close study, especially in highly industrialised regions like the Midlands.

AUSTRALIAN HOUSING

A Co-operative Building Scheme

By R. D. B. MITCHELL

THE provision of homes for young workers is as much a problem in Australia as in any other country with an expanding economy and a mounting population.

Australia, which faced a great shortage of housing after the almost complete cessation of building during World War II, devised many schemes to overcome the double problem of providing building materials and necessary finance. Production is now catching up with the demand for materials, and the supply of bricks, tiles, cement and timber is better than it has been for a long time.

Finance, however, is still a difficulty for young couples seeking a home of their own. One of the most interesting and successful schemes devised to overcome this difficulty is that begun by the Young Catholic Action Group of the Roman Catholic Church in Melbourne, Victoria. Conscious of the need for a stable home as a basis for a good Christian life, the group were early advocates of co-operative building.

From a small beginning, the Security Co-operative Housing Society, as it is known to-day, has grown to embrace 12 separate building societies with a total membership of 2,000. The parent society has arranged its finances by a guaranteed overdraft of £A3,000,000 from the Commonwealth Bank, the State Savings Bank of Victoria and two of the main trading banks. Membership is open to all age groups and religious beliefs.

A member, seeking admission, applies for a sufficient number of £A50 shares to cover the amount of the loan he is likely to seek when building his house. When accepted, he starts to pay monthly subscriptions on those shares at the rate of one shilling and sixpence a share, plus management fees of threepence a share. Subscriptions continue over a period of 30 years, by which time the member will have paid £A27 a share in subscriptions plus £A4 10s. in management fees. He then owns his £A50 shares in full and, if he has not borrowed for the building or purchase of a house, his benefit from the co-operative is considerable. The benefit to members accrues because of the continuing reduction in bank overdraft interest rates to the society as subscriptions are paid.

However, the purpose of membership is to obtain a house. Loans are granted up to 90 per cent. of the valuation of the property, so that a member whose subscriptions already total 10 per cent. of the value of the property he desires to build or buy, may borrow the full amount necessary to make the purchase without any further immediate cash outlay.

In addition to the continuing subscriptions, interest payments at the rate of 4½ per cent. per annum, on the sum borrowed, begin as soon as the loan is made. Interest rates have recently been increased from 3½ per cent. Assuming that a member takes out 40 shares and borrows £A2,000, over the full period of 30 years his payments to the society will amount to £A3,960.

Officers of the society are concerned about the present high rate of interest, but the small monthly instalments required in this simple scheme for purchasing a future home have made the co-operative so successful that the present 2,000 members have absorbed all available finance, and there are no further vacancies for new members until additional finance can be arranged.

RENT RESTRICTION AND HOUSE MAINTENANCE

Some Suggestions for Tackling the Problem

ADDRESSING a meeting at the Housing Centre on February 3, MR. F. N. BEAUFORT-PALMER, chairman of the Hammersmith, Fulham and Kensington Rent Tribunal, offered suggestions for dealing with the problem of raising the rents of houses and flats so that the landlord may be able to afford necessary repairs, without causing undue hardship to the tenant.

Mr. Beaufort-Palmer drew attention to the growing body of opinion that something must be done about this question of restricted rents hampering landlords in carrying out repairs, repairs which in many cases were long overdue. He said he believed that political views on the matter, whether they appeared to favour the landlord or the tenant, were equally at fault. After describing some typical examples of the difficulties which faced those people who were endeavouring to tackle the problem, he said that his own tribunal had reduced rents in about half of the applications for reductions which had come before them, and the average reduction had been under 30 per cent. Of the applications which had been made for reconsideration of the case, in view of "changed circumstances," and which were generally cases of the landlord applying for an increase in rent, the rent had been raised in over half the cases and by an average of 25 per cent.

That showed, he thought, that the tribunals did their best to be fair to both sides.

If one wished to test what was a fair standard rent one would have to have a body which was itself fair. In the latest White Paper on Leasehold Tenure it was proposed that the county court should again be the tribunal to which the tenant could apply for a renewal of tenancy. He always had the feeling, however, that we were rather apt to shove things on to existing bodies too much. If you put too much on to the courts it might interfere with the administration of other types of justice. Therefore he thought some such body as the rent tribunals should be used, and that they should not consist of experts on the subject of rent and housing so much as people with no particular qualifications, but with open minds.

Small Overall Increase

It would be impossible to devise a system whereby the whole of the rent-restricted property in the country could be dealt with next week. The only way to deal with it would be for permission to be obtained for rents to be increased by a small amount which would not help the greedy people on either side.

Mr. Beaufort-Palmer's point here was that if you raised rents by some small amount, such as 2d. in the shilling, you would not immediately arouse the opposition of the tenants as you would by raising it by a large sum. The truth was that the majority of rents were low, and such an increase as he proposed would not be an enormous sum.

If that were done it should be permissible for the landlord to serve on the tenant a notice of his intention to increase the rent. Then it should be possible for either side, or the local authority, to apply to the local tribunal, which should be able to fix the rent above or below the figure intended by the landlord, according to the conclusion they arrived at.

He thought this principle should also apply to cases where "changed circumstances" had arisen and the landlord wished to increase the rent for that reason.

He did not think it was possible to tie repairs up with the normal question of rent fixing and rent restriction. The only way was to make it worth while for whoever was liable for repairs to do them, because if a dwelling deteriorated whoever would benefit by repairs would do them—provided always that the repairs were reasonable for the tenant and did not involve him in an unfair rent increase.

Mr. Beaufort-Palmer thought that on the whole the large property owning companies should not be granted much more in the shape of rent increases, but that each of their properties should be treated on its merits.

He thought that until you evolved some proposition about which all the interests concerned could get around a table and discuss and work out a policy you would never get a satisfactory system of revising rents, because otherwise it would be too politically difficult to tackle the problem in a radical manner.

In repy to a question, the speaker pointed out that in many cases of property ownership the original capital invested was unrelated to present-day costs, and it was difficult to assess the figure on which a reasonable return could be calculated. That was why he thought there should be some body which would go into such matters and work out what was the appropriate rent.

Another speaker expressed the view that much of the supposed opposition to increases in house rents was due to "political uproar," as he put it. He believed many tenants were ready to pay more in order to have more. Repairs and rent increases must be linked together. An increase in rent should be granted only when the premises were in good condition. The matter must also be linked up with the conditions under which the subsidy was given by the 1949 Act.

THE R.I.B.A. STANDARD FORM

Orders by Local Authorities

THE National Federation of Building Trades Employers states that, according to information recently received, the number of local authorities who order copies of the R.I.B.A. Standard Form of Contract direct from the publishers, Messrs. Charles Knight and Co., Ltd., is most encouraging. The details are as follows:—

	Total No. of Authorities	*Authorities Supplied*	*Per cent.*
R.D.C.s	476	388	82
U.D.C.s	571	448	78
Boroughs ...	391	323	83
Met. Boroughs ...	29	25	86
County Councils	66	48	73
	1,533	1,232	80

These figures, it is stated, may be regarded as minimum figures as there are certain local authorities who order copies of the Standard Form direct from the Royal Institute of British Architects, and of these the publishers have no record.

Steel Plant Project

Illustrations showing various features of the construction work on the new Lackenby Steel Works are included in a booklet, "1952 Illustrated," issued by Dorman Long and Co., Ltd. This new plant is expected to be in operation by the summer.

THE COST OF BUILDING

Rise Since 1947 Less Than in Other Industries

SPEAKING at a Cardiff branch of the Federation on February 6, MR. K. L. G. WARNE, chairman of the National Council, Federation of Master Builders, said that in regard to building costs, it was interesting to note that, taking an index number of 100, since 1947 the cost of food had risen to 160 points, fuel, electricity and gas to 144 points, other services and manufactures to 140 points, and building to only 131 points. "This index figure of 131 is, incidentally, the same figure as the general rise in wages," Mr. Warne declared. "It is apparent from these figures that the much-maligned building trade is, in fact, controlling its own cost most effectively and only the wage rises have, of necessity, been passed on to the public."

Mr. Warne went on to say that they were, nevertheless, most concerned with the present high costs, because, of course, it was in their own interests to keep costs as low as possible and thereby widen their market to the greatest extent, but he must point out even to-day, in spite of criticism from many prominent people, that contract charges were as low as compatible with good quality work, and the much criticised and publicised daywork charge was only 60 per cent. as high as the charge made if one hired a tradesman from a mechanical engineering industry and other kindred trades, and this, in spite of the high insurance that they paid, the paid holidays, and the very grave risks from inclement weather. Nevertheless, they would lose, as an industry, no opportunity of keeping costs stable and of finding means of reducing them, and with the co-operation of Government, supplier, builder and employee, he believed they would succeed in accomplishing something in this direction during the next year or two.

EXPANSIVE REACTIONS IN CEMENT

Tests for Aggregates

THE THIRD of a group of National Building Studies* dealing with the problem of chemical reactions between aggregates and cement in concrete has now been published. The two previous papers gave a general survey of the problem and discussed the behaviour of British Portland cements and aggregates.

The present paper describes the application of the expansion bar test for expansive reactivity of some British aggregates. The rock types tested included basalts, dolerites, granites, quartzites, mountain limestone, Portland stone, sandstone and blastfurnace slags. The sands examined included a ferruginous sand, quartz sands and a flint sand.

The results of the research show that none of the aggregates examined show expansive reactivity when used as a whole aggregate with a medium alkali cement. Nevertheless, the possibility of the presence of opaline silica must be borne in mind, particularly when sedimentary deposits are concerned. The paper suggests therefore that before any large new deposits are used tests for expansive reactivity should be made.

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* "Reactions between Aggregates and Cement—Part III Alkali-Aggregate Interaction: The Expansion Bar Test: Cements of Medium Alkali Content." National Building Studies Research Paper No. 17, published for D.S.I.R. by H.M.S.O. price 3s.

NEWS IN BRIEF

N.F.B.T.E. Awards to Students

The N.F.B.T.E., 82, New Cavendish-street, W.1, have issued a leaflet and posters, free on request, drawing attention to the awards for apprentices, craftsmen and students in the building industry offered by the Federation in 1953.

American Award

The board of directors of the American Institute of Mining and Metallurgical Engineers recently announced that the Robert W. Hunt award for 1953 would be given to Dr. J. H. Chesters, D.Sc. (Tech.), Ph.D., for his paper entitled "Flow Patterns in Open-Hearth Furnaces" presented at the 1951 Conference at Cleveland, Ohio, and subsequently published in the "Open-Hearth Proceedings." Dr. Chesters is assistant director of research for the United Steel Companies, Ltd., of Sheffield.

Fire Precautions

General advice on fire precautions in existing single-storey halls without galleries used for occasional performances, and with seating capacities for not more than 200 persons, can be found in booklet No. 14 issued by the Fire Officers Committee of the Fire Protection Association. The recommendations are based on the assumption that no major fire protection equipment is installed. Entitled "Fire Precautions in Small Halls used for Entertainment Purposes," the booklet is available at the Association's offices, 84, Queen-street, E.C.4.

New Development Area

The Board of Trade have made an Order under Section 7 of the Distribution of Industry Act, 1945, creating a new development area embracing part of North East Lancashire and a neighbouring area in the West Riding of Yorkshire. Since the President of the Board of Trade made his statement to the House of Commons on October 29, 1952, all the local authorities whose area contains land in the new development area have been consulted. This Order does not come into operation until it is approved by a resolution of each House of Parliament.

Kent C.C. Buildings Department

Mr. S. H. Loweth, F.R.I.B.A., Kent County Architect, speaking at a dinner of the maintenance section of the Kent C. C.'s buildings department recently, paid a tribute to the work of the department's building surveyors. Mr. Loweth stressed the difficulties of the present time, particularly in regard to the preparation of estimates, and congratulated them on doing a good job. He expressed the appreciation felt by the buildings committee of their work and loyalty to the department. At the close of his speech, Mr. Loweth made a presentation, on behalf of the section, to Mr. F. F. Hawkins, who has been a surveyor on the county architect's staff for 22 years and who is retiring in April. The guests, welcomed by Mr. Butterworth, the principal building surveyor, in addition to Mr. Loweth, included Mr. Green, the deputy county architect, Mr. Westbrook, the principal engineer, Mr. Ellis, the former principal building surveyor, and several ex-members of the county architect's staff. Mr. Butterworth also expressed his pleasure at seeing so many members of the staff and their wives. Over 80 people attended, and the remainder of the evening was spent in dancing and entertainment.

The Late Mr. W. A. Nelson

Mr. W. A Nelson, who retired in 1951 after 60 years' service with the Limmer and Trinidad Lake Asphalt Co., Ltd., died on February 2.

The Building Surveyors' Institute

A regional committee of the Building Surveyors' Institute, with Mr. L. Spencer, of Eastbourne, as chairman, was elected for the newly formed London and Southern Counties Region at a meeting of the Institute in London on January 24.

Middlesex Development Plan Inquiry

Arrangements are being made for the holding of a public local inquiry next month into the 7,000 objections received to the Middlesex County Council's Development Plan. A programme is being worked out for the hearing of all objections received in the Ministry up to February 10. Any objection received after that date cannot be guaranteed a place in the programme.

Council Seeks to Speed Housing

Dudley Town Council, concerned with the lack of progress over housing, has agreed to suspend standing orders over housing contracts so that tenders can be invited from builders other than by public advertisement. Alderman J. Molyneux, acting chairman of the housing committee, told the council that on the last scheme completed it took over 27 months to erect 78 houses. "This is far too long," he said, adding, "It would have been better for us to have paid £2,000 more for those 78 houses and got them in 18 months' less time."

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Gas Appliances Exhibition

The Gas Council's new section, "Gas in the Design for Living," opens at the Building Centre, Store-street, W.C.1, on February 17. The exhibition will provide technical information on the use of gas and coke, and will show a complete range of appliances with examples of approved methods of installation.

Builder to be Mayor

Councillor Harold Pickles, of Bramhope, near Leeds, who has been chosen mayor-elect of Halifax, Yorks, is believed to be the first builder to be chosen for the office in Halifax. Councillor Pickles is governing director of Pickles Bros. (Builders, Ltd.), and Lumb Bros. (Plasterers), Ltd., of Mile Thorn, Halifax.

Scale of Charges

The revised scale of charges for consulting structural engineers, which became operative from April 16, 1952, has been published by the Institution of Structural Engineers, 11, Upper Belgrave-street, S.W.1. It relates to those consultants who are not connected with any firm of contractors and who receive remuneration for their services solely and directly from their clients.

Builder to be Freeman

Alderman Francis H. Wort, senior partner of the firm of Messrs. Wort and Way, building contractors, of Salisbury, is to receive the freedom of the City of Salisbury on March 16, his 75th birthday. A justice of the peace and former mayor, he is "father" of the Council to which he was first elected in 1911. Since 1227, when Salisbury received its first charter, only seven Freemen have been created; the last was Viscount Montgomery in 1949.

CODE OF PRACTICE

Preservative Treatments for Timber

THE Council for Codes of Practice for Buildings has now issued in final form Code 112.100, "Preservative Treatments for Timber used in Buildings," price 3s. It was drawn up by a committee convened on behalf of the Council by the Institution of Structural Engineers, and the present Code is a revision of the draft previously issued for comment.

This Code deals with the preservation of timber by means of wood preservatives against fungal and insect attack and sets out recommendations for the structural use of preserved timbers in buildings. It does not deal with the protection of timbers against fire or mechanical damage, nor with the methods of minimising the decay hazard of untreated timber.

The Code mentions the circumstances in which the use of preservative treatments against fungal and insect attack is desirable, and gives notes on the durability of the different species of timber. A description is given of varieties of wood-destroying fungi and of the various types of wood-destroying insects.

Guidance is given in assessing the factors affecting the choice of preservative, on the preparation of timber for treatment and the methods of treatment and conditioning after treatment. A table is given relating types of preservative and methods of application to the various uses of timber.

Copies may be obtained from the British Standards Institution, 24-28, Victoria-street, London, W.1. The Code is also included in CP 112 (1952), "The structural use of timber in buildings," published at 10s. 6d.

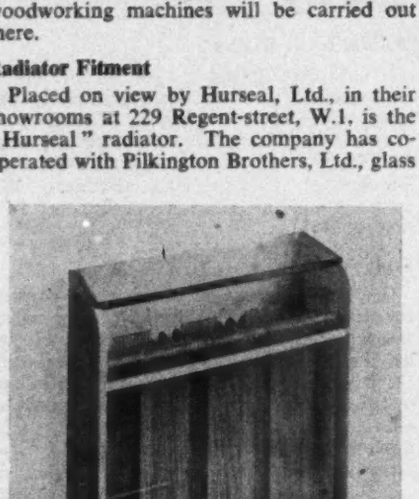
TRADE NEWS

Firms' Amalgamation

The Rothley Engineering Co., Ltd., of Rothley, Leicestershire, has become a wholly owned subsidiary of W. T. Palmer and Co. (Leicester), Ltd. The engineering section of the controlling company is being transferred to Rothley, and all production of woodworking machines will be carried out there.

Radiator Fitment

Placed on view by Hurseal, Ltd., in their showrooms at 229 Regent-street, W.1, is the "Hurseal" radiator. The company has co-operated with Pilkington Brothers, Ltd., glass



manufacturers, of St. Helens, Lancs, to produce a decorative method of enclosing this fitment, and the display model is placed in a simple wooden frame fronted with glass slats and shelf. This particular type of treatment can incorporate glass of various patterns and colours to suit individual tastes.

Insulation and Roofing

F. McNeill and Co., Ltd., 10, Lower Grosvenor-place, S.W.1, have produced two new leaflets which are now being distributed to the trade. The first leaflet deals with Slagbestos insulating units and illustrates and describes the complete range of Slagbestos mineral wool insulating jackets that are available for tanks, cisterns and hot water cylinders. The second leaflet deals with McNeill's bitumen roofing felts, describes Lion, Weathertite and Ace roofing and gives the appropriate job to which each felt applies.

High Paddington

An illustrated article on "High Paddington," the scheme prepared by Sergei Kadleigh, A.R.I.B.A., is included in the winter issue of the "Hunting Group Review," published by the Hunting group of shipping, oil and aviation companies. An exact scale model of the design was made by Hunting Aerosurveys, a member of the group, and then passed over to a sister company, Aerofilms, for photography. Pictures of the model were then superimposed over aerial views of Paddington, and the resulting photographs enabled the architect to show comparative views of the locality before and after the proposed reconstruction. The article makes a brief survey of the facilities to be provided under the scheme.

Rubber in Building

The British Rubber Development Board has recently embarked upon a scheme to make the application of rubber in building more widely known among architects, builders and students, and in this connection Mr. F. Evan Jones, A.R.I.B.A., the Board's consulting architect, is giving a series of lectures to technical schools, colleges and architectural associations. The Board is still accepting bookings for these lectures, at Market Buildings, Mark Lane, London, E.C.3.

Boiler Thermostat

A recent addition to the range of appliances manufactured by Ideal Boilers and Radiators, Ltd., Ideal House, Great Marlborough-street, W.1, is the "Autocrat" boiler, which is equipped with a temperature control for the water supply, thus ensuring that only enough fuel is burned to maintain the chosen temperature. A rocking grate is fitted to facilitate the use of anthracite as fuel. The doors have positive locking catches and concealed hinges for added cleanliness, whilst guides under the grate entrain the ashes into the ashpan. The top-plate is black vitreous enamelled, and the exterior is in grey or cream mottled vitreous enamel. The "Autocrat" is claimed to warm any average-size kitchen, burn kitchen refuse and, where hot water requirements are moderate, have sufficient power to provide background heating in other rooms by means of radiators and a hot towel rail in the bathroom. The company has also announced that the "Hostess" sink is being manufactured with the acid-resisting enamel in the colour "opal green" as an alternative to white. The price will be the same.

Flush Doors

The successful manufacture of flush doors depends on a technique which has only recently been fully understood. The simpler the outlines of a piece of furniture, in fact, the harder it often is to produce. The part played by plastic adhesives in the production of flush doors is shown in an article in the current issue of "Bakelite Progress," published by Bakelite, Ltd., 12, Hobart-place, S.W.1.

Court Decision

In an action brought on behalf of the British Refrigeration Association against Hertford Refrigeration Co., Ltd., W. M. Lewis and Son, Ltd., and Abage (Fulham), Ltd., Mr. Justice Upjohn, on February 3, by consent granted an injunction restraining the defendants from representing (whether by themselves or by servants or agents or otherwise howsoever) in any way that they are members of the British Refrigeration Association, and awarded the plaintiffs an agreed sum by way of damages and £80 agreed costs.

Midlands Display

Displayed on Stand No. 36 at the Midland Building Trades Exhibition, Bingley Hall, Birmingham, from February 18 to 28, will be the products of the Carter group of companies. These will include a slabbed tile partition, a precast terrazzo partition and several tile slabs showing eggshell and glossy enamels with painted and printed subject tiles. The flooring of the stand will be in five strips, including two in "Marbolith" jointless flooring, one in terrazzo, one in hexagonal mosaic and one in 3 in. by 3 in. vitreous floor tiles. Also on the stand will be specimen pieces of moulded faience and bathroom fittings. The parent of this group of specialist companies is Carter and Co., Ltd., Poole, Dorset.

External Wall Finish

A pamphlet published by Callow and Keppich, Ltd., Shippam Gorge, Cheddar, Somerset, gives details of their "Stonite" spatter finish, one of the group of "Stonite" external wall renderings. This is a bag mixed material suitable for use in hand-spraying or spattering machines, which consists of limestone sand, aggregates, and lime. Supplied in a range of decorative colours, it allows the wall to breathe when applied on the recommended backing coat. Notes are included on the mixing, application and coverage of this medium, together with a guide to the preparation of specifications.

Site Plant

The company of Thos. W. Ward, Ltd., Sheffield, and branches, have been appointed official general distributors of the "Staffa" mobile crane. This general-purpose crane is constructed to lift 2/3 tons, and with the forward mounted jib in a horizontal position has an overall height of 10 ft. and a lifting capacity of 1¼ tons. The derricking action is hydraulically operated and fixed in line with the chassis and counterweight. Another machine for which the company and branches have been appointed official distributors is the "Wetherill-Hydraulic" loading shovel. This is equipped with a scoop and side arm control for loading loose materials and items of bulk. Three scoop sizes are available, enabling loads of up to one ton to be carried, and a 'dozer blade can be fitted for levelling and piling work. Power is provided by a Fordson "Major" tractor.

OVERSEAS BUILDING

[From Our Own Correspondents]

Denmark.—There are plans in Denmark for the building of a factory in Thisted for the manufacture of cars made from plastics and light metal. According to latest reports, the State is to put up part of the money. The plant will be large enough to employ about 400 workers and to produce 4,000 cars per year.

Egypt.—A number of modern grain silos are to be built in Egypt. The Government is to give active support to this project and will probably invest up to 25 per cent. of the cost, which will be in the region of about £6m. A company is to be formed to undertake the task of building the silos. A scheme is now also under study which calls for the construction of a new dam 15 kilometres to the south of the Aswan Dam which would have a storage capacity greatly in excess of Aswan. Cost, including a hydro-electric station, is estimated at £80m. spread over five years. The Technical Co-operation Administration in Washington is interested in the scheme and is sending a mission to study it. This project will obviate the necessity for building reservoirs at Wadi Rayan, Marwa and Haifa. . . . Tenders have now been received for the Aswan Dam project. Offers range from £10m. to £6m. Tenderers have been asked to hold their offers valid until March 31. Measures for the registration of the first housing co-operatives association have been completed. The association is known as the "Saving and Credit Association of Maadi" and it has already begun work in the Cairo suburb of Maadi. First plans of the association are to build 146 two-storey villas of five rooms, which cost about £2,400 each, including the price of the land.

Israel.—An important cultural undertaking is under way in Emek Hayarden, Israel, where a large amphitheatre for performances and gatherings is being built. The amphitheatre which is being erected in commemoration of Emek Hayarden residents who fell in the recent Israeli war is being built on the shores of Lake Kinnereth. The building will accommodate an audience of 2,500 while 5,000 will be able to foregather for meetings and festivals. Under the stage will be built dressing rooms, and a store for stage properties.

New Zealand.—The New Zealand University Senate is preparing for submission to the Government a statement on the long-term building needs of university colleges. The number of students in New Zealand is expected to more than double during the next 15 years, and it is felt that the sooner building starts the readier will the authorities be to meet the situation when it arises.

Nyasaland.—The Director of Civil Aviation has now announced that plans are being made for the construction of a second all-weather airport to serve as an alternative to the present international standard airport at Chileka, near to Blantyre. The new airport will probably be situated at Salima, the railhead on the Western shore of Lake Nyasa. A British firm, as yet un-named, has been commissioned to investigate and report on the proposed new airfield and the report should be presented to the Nyasaland Government in the near future.

South Africa.—The South African Government is considering plans for the development of Sordwana Bay as a new port. This port will be a main outlet for Natal, where a number of factories are to be built, including a large sugar mill at Pongola. . . . The Typographical Union of South Africa is to build a new block of offices for its administration in Pretoria. The building will cost in the region of £90,000.

**South Africa.*—The Union Tender and Supplies Board, Pretoria, has issued a call for tenders, No. S.O. 7400, for the supply of excavating equipment to the Division of Soil Conservation at Pretoria. The tender must be in the hands of the chairman, Union Tender and Supplies Board, 271, Visagie-st., P.O. Box 371, Pretoria, not later than March 12 next. A copy of the tender documents and specification is available for inspection in Room 6173 of the Board of Trade, Commonwealth Relations and Export Department, Horse Guards-ave., S.W.1. All inquiries by telephone should be made to Trafalgar 8855, Ext. 2920.

Southern Rhodesia.—The new hotel and cinema, costing £850,000, which is to be built at Salisbury, in Southern Rhodesia, and which was mentioned in *The Builder* of October 17 last, is to go into construction some time this year, according to the Schlesinger Organisation, the business group who are behind the project. The hotel, according to Mr. John Schlesinger, will be the most modern in the whole of Africa. It will be nine storeys high and will face Union-avenue. The best features of leading American hotels are to be incorporated in this hotel. It will be built to a semi-tropical design and there will be an attempt to bring to residents a "feeling of being outdoors at all times." The building will be air-conditioned and each floor is to have its own colour scheme. There will be 90 rooms for guests, each room being designed to be a lounge by day and a bedroom by night, as well as restaurants, lounges, bars and cocktail bars. The cinema will seat 1,350 people and will be built on ultra-modern lines. In addition to this large scheme, Mr. Schlesinger has plans for building in Salisbury a group of large offices for his insurance company, with shops beneath, but this will not be started until the hotel and cinema are well under way. . . . It is reported from Beira that work is to start shortly on surfacing the Beira-Rhodesia road. Tenders for the construction of seven bridges between Vila de Manica and the frontier are to be considered. About £275,000 has been voted in this year's Budget for this road. This is quite apart from the appropriation for the bridges.

* From the Board of Trade Special Register Information Service.

PRICE BUILD-UP TODAY

By CAIN (V. C. Abell)

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INQUIRY BUREAU

Curing Damp Walls

Q.—Fifteen months ago we purchased an old detached villa and have converted it into a hostel. The brickwork is 14 in. solid, containing no cavity, and the inside plasterwork is 2 in. thick. During prolonged frost the plasterwork films over with a coating of ice, and when the thaw comes the walls are very wet. I must add that this condition only appertains in bedrooms, etc., where there is no heat. I shall be glad to know if there is any known cure.

H. W. H.

A.—This case is one of unusual interest. Over an experience of 50 years I have only known ice forming when the building was entirely new and when the internal plastering contains quantities of water before drying out. In this case it is probably due to the brickwork absorbing dampness over a period and then, owing to the continuance of frost and any humidity becoming frozen inside. The brickwork should be inspected and the pointing reinstated and the external walls treated with a waterproof compound; the rooms should be permanently ventilated by means of air bricks on the external walls, preferably four; two air bricks six inches down from ceiling and two air bricks six inches up from floor level. A method of heating should be installed either by gas, water radiator or electric stoves. These could be used to balance the varying forms of atmospheric conditions. The walls should be finished preferably with wallpaper or size-bound distemper.

(The name of a suitable waterproof compound has been forwarded to the inquirer.)

Unsafe Gable End

Q.—I am at the present time renovating a gable end terrace house approximately 50 years old, and on stripping plaster I found that the gable end, at the junction with the dividing wall (single brick) had moved outwards, leaving a gap of about two inches at the worst point. Do you consider this serious, and what measures would you suggest to counteract same? E. B.

A.—It would be advisable to ascertain how much the gable end is out of plumb. Drive in a six-inch spike at the apex at the ridge and measure down the line. If the wall is still moving place some tell-tales made of one-inch strips in width and 1 ft. 6 in. long of zinc or copper and turn up one end to make a right-hand angle of an inch. Fix one tell-tale under the ceiling on the wall and against the gable end fix the other about 12 inches off the floor using the same method. This will enable the movement to be detected, but for an immediate remedy use tie rods, to be made as follows: 1¼-in. rods to rest on the ceiling joists. At each end externally fix four-by-two channels on each end of the gable end walls. The rods pass through the channels and are secured by nuts on the screwed ends of the rods. They should only be hand tightened as the wall could easily be cracked.

I recommend this method on the assumption that the settlement that has caused the wall to overhang is not too great. The tie rods and the channels should be painted with three coats of red lead. In cutting holes for the rods to pass through do not fracture the brickwork unduly; try to draw a header. In making good the partition wall internally use galvanised cramps and fix strongly into the gable end wall.

G. W. H.

The
SCOTTISH BUILDER

Need for More Property Owners

THE Government believed firmly not only in the need but in the possibility of creating a property-owning democracy, said the RT. HON. THE EARL OF SELKIRK when he proposed the toast of the "Scottish Amicable Building Society" at the Society's annual dinner held in Edinburgh on February 6.

Another reason why they attached importance to privately built houses, he said, was the cost of local authority houses both to the taxpayer and the ratepayer. To-day this worked out at something between 25s. and 30s. a week of the contribution either from the Exchequer or from local authorities, and he thought it was common knowledge that the occupiers in certain cases did not necessarily require this public support.

"In our plans to increase the number of houses in Scotland," said Lord Selkirk, "we have chosen to ensure that private enterprise will play as large a part as practicable. It has seemed to us that many small builders not at present engaged in house building would be willing to take up this work for private sale, and the contribution they would make to the total building programme in many districts might be quite considerable. The Secretary of State, on two recent occasions, has reviewed the arrangements for the control of private building and as a result the controls which previously operated over private enterprise have been very materially reduced, and private enterprise is now in a position to make a real worthwhile contribution towards house building in Scotland.

"Anyone in real need of a house for himself ought now to be able to get from his local authority a private building licence. This leaves a wide and important field in which building societies can make a very real contribution.

"It has sometimes been said that by giving this freedom to local authorities, the programme of houses built to let would be contracted and that people in sad need of houses would have to do without them. That was not the Secretary of State's view and it is not mine. We believe that the local authorities can be trusted. Clearly the main emphasis must continue to be on the building of houses for letting by local authorities and this is likely to be recognised as clearly by people sitting close to the problem in each local authority area as by any group of people, be they Minister or civil servants, sitting in St. Andrew's House.

"One may hope that the recent decision to sweep away development charges will have removed one factor which was certainly discouraging many who wished to build their our homes. One must face the fact, however, that if private building is to develop in Scotland up to anything like the pre-war scale of three in ten, it is clear that building costs must come down very sharply. This is absolutely fundamental, and no task of greater importance faces the building industry to-day. Higher productivity and the use of better techniques in the building industry are urgently called for. I am sure these are matters which are being given earnest attention at all levels."

Housing Figures for 1952

HOUSES completed in Scotland last year totalled nearly 31,000, about 4,500 more than the previous best for any single year since complete records began to be kept, according to the latest housing return published by the Department of Health for Scotland. Final figures for 1952 show that in December the record number of 3,708 new houses were built, bringing the year's total up to 30,947. The previous best building year was in 1938, when 26,473 new houses were completed. The number of new houses built in Scotland under the post-war programme now stands at 176,948 (144,772 permanent and 32,176 temporary).

New Government Building

WORK is to begin shortly on a £200,000 project in Gallowgate, Aberdeen, to house the bulk of Government activities in the city. The three-storey project is expected to take some two years to complete and will be on the most modern lines. It will house all but the Ministry of Works staffs in the city.

Renfrew Airport

WORK is to begin shortly on Renfrew Airport's new terminal building which will cost approximately £150,000. It will be one of the most modern in the world, incorporating the latest features in airport terminal construction of both America and Europe. One of the special features for the comfort of passengers will be a covered "walk" from the building to the aircraft. The "gate" system, used by railways for dealing with passengers, will be used. Other amenities will include a first-floor restaurant, where diners will be able to watch the arrival and departure of aircraft. Specialist firms have been invited to tender for the work, and it is expected that the building will be completed by the autumn of next year. Expenditure may be increased by about £30,000 for alterations to the landing apron. The architect is Mr. W. H. Kininmonth, 16, Rutland-place, Edinburgh.

Brick Production Up 12 Per Cent.

SPEAKING on the brick situation in London last week, MR. H. HALLIDAY, director of the National Federation of Clay Industries, said that in 1952 brick production in Scotland had increased by 79m. to a total of 742m. bricks, which represented an increase of 12 per cent. compared with the previous year.

NEW BUILDINGS

Clackmannanshire.—Plans prepared for 84 houses to be erected, at an est. cost of £168,000, at Tillicbody-rd., Alloa.

Dumbarton.—Plans in hand for 12 houses for the Scottish Special Housing Association, Ltd., to be erected at Bellsmyre, for which the architect is J. Austin Bent (A.), 15-19, Palmerston-pl., West End, Edinburgh.

Glasgow.—Plans prepared for alterations and additions to the factory of Collins, Ltd., at Alexandria-par., Dennistoun. The architect is Magnus Duncan (F.), 243, Eglinton-st., Glasgow, S.

Glasgow.—Plans prepared for the British European Airways Corporation, Keyline House, Ruislip, for alterations and additions at St. Enochs-sq., for which the architects are Samuel Bunton & Associates (F.), 7, Somerset-pl., Glasgow.

Glasgow.—Plans prepared for new Church of Scotland halls at Ryehill-rd., for which the architects are Noad & Wallace (FF.), 278, St. Vincent-st., Glasgow.

Glasgow.—Plans prepared for Pullers, Ltd., for alterations and additions at 93-99, Buchanan and 7-9, Gordon-sts., for which the architects are Cullen, Lochhead & Brown (F.), 119, Cadzow-st., Hamilton West.

Greenock.—Plans in the hands of their own designers for office extensions, etc., at East Hamilton-st., also new printing department for John G. Kincaid & Co., Ltd., engineers, Greenock.

Kirkintilloch.—Plans to be prepared for 20 houses for the Corporation. The architect is Ronald G. Walker, Master of Works Offices, Kirkintilloch.

Lanarkshire.—Plans prepared for new offices at Cogan-st., Pollockshaws, for Donaldson & Filer, Ltd., for which the architects are James Taylor Thomson, MacCrae & Sander (F. & A.), 212, Bath-st., Glasgow.

Lanarkshire.—Plans prepared for 60 houses at Bellshill, for which the architect is Samuel MacColl (A.), County-chbrs., Beckford-st., Hamilton West.

Lanarkshire.—Plans in hand for new Coatbridge school, for which the architect is William Wald, Albert-st., Motherwell-Wishaw.

NEW COMPANIES

THE FOLLOWING NEW COMPANIES, registered in England, have been announced by Jordan and Sons, Ltd., company registration agents.

Industrial Painters, Ltd. (515037.) Regd. Jan. 9. 60, Christian-st., Liverpool, 3, decorators, contractors, etc. Nom. cap.: £3,000. Dir.: M. S. Hall, Tower House, Victoria-rd., Freshfield, Lancs.

R. A. Neaverson, Ltd. (515078.) Regd. Jan. 10. Abbey Garage, Abbey-la., Leicester. To construct and equip garages and coach stations, etc. Nom. cap.: £7,500. Dirs.: R. A. Neaverson and Mrs. E. Neaverson, 49, Westfield-rd., Leicester.

A. E. Savage, Ltd. (515088.) Regd. Jan. 12, 18. Belper-rd., Nottingham, bldr. and contractor. Nom. cap.: £5,000. Dir.: N. W. Holland, 3, Torland-dr., Basford, Nottingham.

Border Construction Co., Ltd. (515090.) Regd. Jan. 12, bldrs. and contractors, etc. Nom. cap.: £1,500. Dir.: J. R. Hood, Ulverston, Hooton-rd., Willaston, Wirral, Ches.

H. E. Allman, Ltd. (515098.) Regd. Jan. 12, bldr. carried on at Peacehaven by H. E. Allman. Nom. cap.: £1,000. Dir.: H. E. Allman, Bramber Lodge, Bramber-ave., Peacehaven.

Plan Flats, Ltd. (515106.) Regd. Jan. 12, 10, Adam-st., Adelphi, W.C.2. Nom. cap.: £1,000. Subs.: C. F. Cunningham and B. G. M. Mitchell, 10, Adam-st., W.C.2.

R. E. Wood, Ltd. (515108.) Regd. Jan. 12, 2, George-st.-chbrs., Staines, Middx., bldrs., etc. Nom. cap.: £5,000. Dirs.: R. E. Wood and Gladys A. Wood, Abbey Cottage, Old Windsor, Berks.

Webber Brothers (Contractors), Ltd. (515117.) Regd. Jan. 12, 77, Tachbrook-st., S.W.1, bldrs. and decorators. Nom. cap.: £100. Dirs.: S. Webber and Nellie Webber, 91, Nimrod-rd., Streatham, S.W.16.

Witan Construction Co., Ltd. (515118.) Regd. Jan. 12, 23-5, Hough-la., Leyland, Lancs, bldrs., contractors, etc. Nom. cap.: £2,000. Dir.: A. J. Milne-Smith, Westfield Castletown, Isle of Man.

Structural Appliances Co., Ltd. (515156.) Regd. Jan. 14, 23-4, Hall-st., Birmingham, structural and consulting engrs., etc. Nom. cap.: £100. Dir.: Mrs. L. M. M. Doyle, Woodside, Ellenbrook-rd., Boothstown, nr. Manchester.

R. Cunningham (Buildings and Contractors), Ltd. (515151.) Regd. Jan. 14, Firwood Mill, Joshua-la., Middleton Junction, bldr. and contractor. Nom. cap.: £500. Dir.: R. Cunningham, 41, Greenhill-rd., Middleton Junction.

Amos Danby & Sons, Ltd. (515161.) Regd. Jan. 15, Poole House, Poole-rd., Itchen, Southampton, bldrs. and contractors. Nom. cap.: £15,000. Dir.: C. E. Danby, Dalegarth, Poole-rd., Itchen, Southampton.

A. E. Tidey, Ltd. (515179.) Regd. Jan. 16, 1, Heber-rd., East Dulwich, S.E.22, bldrs. and contractors, etc. Nom. cap.: £1,000. Dirs.: A. E. Tidey and Mrs. R. Tidey, 28, Jevington-way, Lee, S.E.12.

W. G. Venn & Sons, Ltd. (515218.) Regd. Jan. 16, plastering and granolithic contractors, bldrs., etc. Nom. cap.: £1,000. Dir.: W. G. Venn, St. Clair, Uxbridge-rd., Hayes, Middx.

The Builder FUTURE CONSTRUCTION

Full details of Public Appointments open will be found in the Advertisement pages of this and previous issues.

CONTRACTS OPEN

For some contracts still open but not included in this list see previous issues. Those with an asterisk are advertised in this number. The dates at the heads of paragraphs are those for the submission of tenders; a dagger (†) denotes closing date for applications; the name and address at the end refer to the person from whom particulars may be obtained.

BUILDING

FEBRUARY 16.

***†Durham C.C.**—M.O.W. hutting at 10 schools. County A., Court-la., Durham.

***†Gateshead B.C.**—Heating and hot water supply to Deyden-rd. grammar school. Chief A. M. Yendall, Assistant Chief A., Swinburne-st. Dep. £2 2s. Tenders by March 9

***†Peterborough T.C.**—128 houses on Dogsthorpe North estate. (Contract divided into five groups.) F. J. Smith, M.B.E., A.M.I.C.E., E. & S., Town Hall. Dep. £2 2s. Tenders by March 2.

***†Suffolk and Ipswich Fire Authority.**—Fire station, Bear-st., Nayland. E. J. Symcox (F.), County Hall, Ipswich. Dep. £2 2s. Tenders by March 3

FEBRUARY 17.

***†Bucks Standing Joint Com.**—Seven police houses at various sites. County A., Aylesbury. Dep. £2 2s. per contract. Tenders by March 11.

***†East Ham B.C.**—Six flats, Barking-rd. Chief Hsg. Officer, Town Hall. Dep. £5 5s.

***†Isle of Ely C.C.**—Junior school, Maple-gr., March. County A., March. Dep. £4 4s. Tenders by March 16.

FEBRUARY 18.

***†Cardiff City C.**—County primary junior school, Llanrumney. L. C. Patterson, A.R.I.C.S., 11, Cathedral-rd. Dep. £2 2s.

***†Glenrothes Dev. Corpn.**—802 houses at Auchmuty. The Secretary, Glenrothes Dev. Corpn., Glenrothes, Fife.

***†Southampton B.C.**—Two Quonset huts at Foundry-la. infants' school. Boro' A. Dep. £1. Tenders by March 16.

***†Southampton B.C.**—Brickwork shop, Paget-st., Technical College. Boro' A. Dep. £1. Tenders by March 16.

FEBRUARY 20.

***†Chorleywood U.D.C.**—84 houses and 25 garages, Berry-la. site. L. C. Powell (F.), Norfolk House, Chesham. Dep. £2 2s.

***†N.E. Met. Reg. Hosp. Bd.**—Conversion of discharge block to form chest clinic at St. Ann's General Hosp., South Tottenham, N.15. Secretary, N.E. Met. Reg. Hosp. Bd., 11a, Portland-pl., W.1.

FEBRUARY 23.

***†Tettenhall U.D.C.**—69 dwellings, Grange estate. J. W. Mason, E. & S. Dep. £3 3s.

FEBRUARY 24.

***†Northamptonshire C.C.** — Corby proposed grammar school. County A., Northampton.

FEBRUARY 25.

***†Bromsgrove U.D.C.**—140 houses, Charford housing estate. E. & S. Dep. £3 3s.

***Ealing B.C.**—Two lodges, Perivale Park. B.S. Dep. £2.

FEBRUARY 26.

***†Portsmouth City C.**—Demolition and alterations at Girls' Southern Grammar School, Fawcett-rd., Southsea. City A. Dep. £3 3s.

***†Portsmouth City C.**—18 houses and 24 flats, Lake-rd. R. Thomas (F.), Buckingham House, High-st. Dep. £3 3s.

***Warwick B.C.**—Six shops and 12 flats, Shakespeare-ave. B.E. & S. Dep. £3 3s.

FEBRUARY 27.

***Bucks C.C.**—Infants' school at Water Eaton, Bletchley. County A., Aylesbury. Dep. £5 5s. Tenders by March 27.

***†Hendon B.C.**—Nine flats, North-rd., Burnt Oak, Edgware. B.E. & S. Dep. £2 2s. Tenders by March 6.

***Luton B.C.**—26 houses with roads and sewers at Hayhurst-rd. B.E. Dep. £2 2s.

***Weymouth and Melcombe Regis.**—14 old people's bungalows on Downclose housing estate. B.E. & S., 6, Pulteney-bldgs., Weymouth. Dep. £2 2s.

FEBRUARY 28.

***Rochdale B.C.**—306 dwellings, Kirkholt estate. B.S. Dep. £5 5s.

Worsley U.D.C.—144 dwellings at Hill Top (Sharp-st.) site, Walkden. H. Lomas, Clerk, Town Hall, Walkden, Manchester. Dep. £2 2s.

MARCH 2.

***Brighton B.C.**—Adaptation of "The Grange," Rottingdean, into branch library. B.E. & S., 26-30, King's-rd. Dep. £2 2s.

Doncaster B.C.—Sec. mod. sch. at Hills-la., Wheatley. Boro' A. Dep. £3 3s.

Macclesfield R.D.C.—(1) 40 houses at Chester-rd., Poynton; (2) 40 houses at Lane Ends, Sutton. H. Chadwick, engineer, 19, King Edward-st. Dep. £3 3s. per site.

***Stepney B.C.**—Jointless floor covering and steel roof glazing, library building and welfare centre, Cable-st. B.E. & S., 227-233, Commercial-rd., E.1.

***Wokingham R.D.C.**—36 houses, 4 bungalows and 9 flats, Finch-rd., Earley. E. G. V. Hives (L.), 3, Cork-st., Reading. Dep. £2 2s.

MARCH 3.

***Barrow-in-Furness B.C.**—119 houses on Tummerhill housing estate extension. B.E. & S. Dep. £2 2s.

MARCH 5.

***Rushden U.D.C.**—Alterations and repairs at Rushden Hall. T.C.

MARCH 6.

Newcastle-upon-Tyne City C.—Five police houses on Slatyford-la. estate. City A.

MARCH 7.

***Hornchurch U.D.C.**—78 flats in Front-la., Cranham. S. Dep. £2 2s.

***York City C.**—Four shops with flats over at Askham-la. and also at Moor-la. housing estate. City A. Dep. £3 3s.

MARCH 9.

St. Helens T.C.—Four houses at Alder Hey-rd., Dodd-ave., contract No. 2,019. B.E. Dep. £2 2s.

Tynemouth T.C.—142 houses at Chirton Grange South estate, North Shields. B.S., North Shields Dep. £2 2s. per contract.

MARCH 10.

***Eton U.D.C.**—24 houses and 8 flats at Meux Field housing site, Eton Wick. E. & S. Dep. £2 2s.

MARCH 11.

***Ipswich C.B.**—Extensions, crematorium, Ipswich new cemetery. B.E. & S., 19, Tower-st. Dep. £3 3s.

MARCH 18.

***Grantham B.C.**—24 houses, Harrowby. B.E. & S. Dep. £2 2s.

MARCH 31.

***Camberwell B.C.** — 234 flats at Denmark Hill housing estate, blocks A, B and C. Director of Housing. Dep. £5 5s.

***Camberwell B.C.**—Blocks A, B and C (234 flats), Denmark Hill estate. C., Town Hall. Dep. £5 5s.

NO DATE.

Basingstoke T.C.—Eight aged persons' dwellings at Church-sq. B.S. Dep. £2 2s.

***Leamington Spa B.C.**—Convenience, Jephson-gdns. B.E. Dep. £2 2s.

Newcastle-under-Lyme R.D.C.—(1) 14 houses at Bignall End; (2) roads at Wood-la. housing site; (3) footpaths at Madeley housing site. A. Lovatt, architect, 6, King-st.

***Tunbridge Wells B.C.**—108 dwellings, Sherwood estate (two contracts). H. P. Bishop, B.S. Dep. £2 2s. each.

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***Whittlesey U.D.C.**—62 houses at Victory-ave. and Drybread-rd. housing estate. Ruddle and Wilkinson (F.A.A.), Long Causeway-chbrs., Peterborough. Dep. £2 2s.

PAINTING, ELECTRIC LIGHTING, MATERIALS, ETC.

FEBRUARY 27.

Enfield U.D.C.—C. (Materials.)

***Manchester City C.**—Supply of dust-allaying oil and brushes. Educ. Com., Stores Dept., Chadderton-st., New Cross.

FEBRUARY 28.

Aberdare U.D.C.—E. & S. (Materials.)

Derbyshire C.C.—C.S. (Materials.)

Redcar B.C.—T.C. (Materials.)

MARCH 2.

Cannock U.D.C.—E. & S. (Materials.)

Haslingden B.C.—B.S. (Materials.)

Lytham St. Annes.—B.E. & S. (Materials.)

MARCH 6.

Gloucester City C.—City E. & S. (Materials.)

MARCH 7.

Horbury U.D.C.—E. & S. (Materials.)

MARCH 11.

Crompton U.D.C.—E. & S. (Materials.)

MARCH 13.

Lowestoft B.C.—B.E. & S. (Materials.)

MARCH 14.

Leominster B.C.—B.S. (Materials.)

MARCH 23.

Rushden U.D.C.—E. & S. (Materials.)

ROADS, SEWERAGE AND WATER WORKS

FEBRUARY 23.

***Wisbech and Dist. Water Bd.**—Filter house at Marham pumping station. T. F. Parker (L.), 9, The Crescent, Wisbech. Dep. £2.

FEBRUARY 24.

Bradford City C.—Resurfacing roads with asphalt. City E. & S. Dep. £2 2s.

FEBRUARY 27.

St. Albans R.D.C.—Sewers at Colney Heath. C. Huskinson, Surveyor to the Council. Dep. £3 3s.

Sutton and Cheam B.C.—Surface dressing of roads within the borough. B.E. & S., Municipal Offices, Sutton.

MARCH 2.

Wiltshire C.C.—Road works in Amesbury district. County S. Dep. £2.

Winchester City C.—Surface dressing of roads. City E.

MARCH 6.

Runcorn U.D.C.—Roads and sewers on the Russell-rd. housing estate—section 2. S., Town Hall. Dep. £2 2s.

Staines U.D.C.—Roads and sewers on the Convent estate, Ashford. E. & S., Shortwood House, 240, London-rd., Staines. Dep. £2 2s.

MARCH 9.

Blofield and Flegg R.D.C.—Roads and sewers at East Caister housing estate. E. & S. Dep. £2 2s.

Cheltenham B.C.—3,600 yds. pipes at Ashchurch. B. Water E. Dep. £5 5s.

Gosport Waterworks Co.—Reservoirs at Street End and Fir Down. Rofe and Rafferty, civil engrs., 3, Victoria-st., Westminster, S.W.1. Dep. £2 2s.

MARCH 11.

Lancaster T.C.—Main drainage scheme in four contracts. City E., Town Hall. Dep. £2 per contract.

MARCH 16.

***Cuckfield R.D.C.**—Site preparation at Handcross housing site. E. & S. Dep. £2 2s.

MARCH 30.

East Kesteven R.D.C.—Construction of 1m. gals. r.c. reservoir at Wilsford Heath. Howard Humphreys & Sons, Victoria Station House, 191, Victoria-st., S.W.1. Dep. £3 3s.

GENERAL BUILDING WORK (LONDON)

Camberwell.—SITE ACQUISITION.—Compulsory purchase orders are being made by B.C. for the acquisition of 75, Fenwick-rd., 198-202 (even), Albany-rd., 27, Highshore-rd., 1 and 3, Champion-gr., 10, Champion-gr., 102, Consort-rd., 20-34 (even), Sumner-rd., 153-156, Camberwell-gr. and 147-151 (odd), Camberwell-gr. for inclusion in the council's housing sites.

City.—EXTENSIONS.—Proposals for a 120-bed extension to St. Bartholomew's Hospital have been approved by the Court of Common Council. Sites involved are 48 to 57, Little Britain, 63 to 72 and 74 to 83, Bartholomew-close, and part of 55 and 56, West Smithfield. Sketch plans have been prepared by Adams, Holden and Pearson (FF./AA.), 2, Gordon-sq., W.C.1.

Hornchurch.—FACTORY.—Application for erection of factory at New-rd., A.13, junction with Lower Mardyke-ave., Rainham, made by Horn Construction Co., Ltd., civil engrs., Finsbury-pavement House, Moorgate, E.C.2, has been deferred by T.P. Com.

Kensington.—FLATS.—Stages II and III approval has been received from the L.C.C. for proposed erection of 8 flats at 10-14 (even), Cambridge-gdns., estimated cost £18,296, and 20 flats at 14-17, Colville-sq. and 11-17 Colville-gdns., estimated cost £39,061.

B.E. is preparing working drawings and bills of quantities for these schemes, and also for the erection of 10 dwellings at 79-83, Cornwall-cres. and 96-100, Blenheim-cres.

Kensington.—HOUSING SITES.—Approval in principle to the clearance of the following sites, and their inclusion by B.C. in the 1953 housing programme, has been given by M.H. and L.G.: Paddington-rd./Portobello-rd. temporary bungalow site, 72, 82 and 84, Cornwall-cres., Cornwall-cres./Talbot-gr. bungalow sites, sites of 6-8, Cornwall-cres. and 9, Ladbroke-cres.

Kensington.—HOUSING.—L.C.C. Stage I approval has been given to the development of Acklam-rd./Blagrove-rd. by the erection of 18 dwellings, and plans are in course of preparation by J. Grey and Ptnrs. (F/L.), 17, Buckingham-st., W.C.2.

Kensington.—SITES FOR HOUSING.—The use of the following sites for housing purposes has been given Stage I approval by L.C.C.: 275-277 and 297, Ladbroke-gr., 53, 55 and 57, Faraday-rd., 42, 44 and 84, Tavistock-cres., 61, 63 and 65, Tavistock-rd., 23, Basing-st., 140-144, Finborough-rd., 82-84, Redcliffe-sq.

Woolwich.—SCHOOL.—Preliminary plans for a new school for 280 children on the site of Montbelle county primary school have been approved by L.C.C. Ed. Com. They were prepared by L.C.C. architects, and estimated cost of the scheme is £49,060.

(PROVINCIAL)

Altrincham.—Sparke & Stephens, 105, Wood-la., Timperley, propose 125 houses at Shaftesbury-ave. area.

Ashbourne.—U.D.C. approved erection of further 36 houses at Park estate.

Billingham-on-Tees.—U.D.C. Surveyor, J. H. Shepherd, has been instructed to prepare scheme for 24 houses at rear of Victoria and Queen-terraces, Port Clarence.

Boldon (Co. Durham).—U.D.C. received loan sanction for £38,998 for 28 houses at Boldon. Builders, Gordon Durham & Co., East Boldon.

Chester.—T.C. to grant following licences for houses: 12 at the Nook, Newton, for Thomas Bldg. & Const. Co., Ltd., 11a, Chapel-la., Boughton; 12 at Balmoral Park for A. H. Moorcroft, Cherry Garth, Dee Banks.—T.C. to prepare detailed scheme and invite tenders for erection of new market, £10,000 est. cost.

Crook (Durham).—U.D.C. to develop Wheatbottom site by erection of between 500 and 600 houses and shops. Start on house building expected before the end of year. Council's architects are T. A. Page, Son & Hill, 75, King-st., South Shields.

Cumberland.—Tenders to be obtained by West Cumberland Industrial Dev. Co., Ltd., 30, Roper-st., Whitehaven, for factory additions covering 17,500 sq. ft., for the British Fez Co., Frizington, and a factory of 10,000 sq. ft. at Cleator Moor, for Rempley, Ltd.

Darlington.—Corp. has prepared plans for a new bus station, est. cost £20,000. Boro' A., E. H. Tornbohm, Municipal-bldgs.

Gateshead.—Corpn. to build 16 houses at Sheriff Hill by direct labour, cost £23,000. Boro' S., J. McGregor.

Gateshead.—T.C. received loan sanction for £26,057 for erection of 18 flats in Saltwell-rd.

Greens Norton.—Towcester R.D.C. propose erection of 12 houses.

Harrogate.—T.C. approved plans for offices and laboratories at Crimple House estate for I.C.I., Ltd.

Hartlepool.—T.C. to erect three-storey flats and old people's hostel in Coverdale-st. area. J. H. Wood, Borough-bldgs., is B.E.

Hebburn.—U.D.C. to build community centres on their housing estates.—Council architects, T. A. Page, Son & Hill, 75, King-st., South Shields.

Jarrow.—T.C. to build 41 houses at an est. cost of £54,009. Plans by B.E., H. W. T. Perkins.

Jarrow-on-Tyne.—Boro' E., H. W. T. Perkins, prepared layout plan for 20 shops in Perth-ave. area. Sites to be advertised.

Kidsgrove.—U.D.C. propose 198 houses and 16 aged persons' bungalows at Rookery estate.

Leeds.—T.C. approved in principle scheme for new bus station and multi-storey car park.

Liverpool.—Extensions proposed to Atlantic House for the Apostleship of the Sea, £70,000 est. cost. Architect, Sir A. E. Shennan, 17, North John-st., Liverpool.

Longbenton (Northumberland). — Vickers-Armstrongs, Ltd., Newcastle, are to start work in June on construction of large tractor factory.

Lytham-St. Annes.—T.C. approved plans for 20 bungalows at Church-rd. for Clifton Hsg. Assoc.

Manchester.—Reg. Hosp. Bd. to prepare working drawings and quantities for twin operating-theatre suite at Crumpsall Hospital, £69,893 est. cost.

Matlock.—U.D.C. propose 162 houses on third section of Hurst Rise estate.

Newcastle-on-Tyne.—C. Solomon, St. Mary's-pl., is architect for factory in Blenheim-st., for Shaw Processes, Ltd., research engineers, Queen-st.—Morton A. Mackenzie, 1, Eldon-sq., has prepared plans for beer store at Leazes Brewery, Claremont-st., for W. B. Reid & Co., Ltd.—Cussins, Ltd., builders, Gosforth, are to erect six houses at Kenton-ave. and Adeline-gdns. — Newcastle Breweries, Ltd., Haymarket, Newcastle, are to erect additional storey to premises in Bath-la. and Corporation-st. Architects are J. Oswald & Sons, 68, Northumberland-st.

"THE BUILDER" PRICES

LEAD PRODUCTS

Associated Lead Manufacturers, Ltd., have announced the following revised basis prices per ton for their products which came into effect on Feb. 7.

	£	s.	d.
Genuine English dry white lead ...	144	0	0
Genuine ground English white lead ...	164	10	0
Genuine English white lead paint (per gal.)	*2	18	0
Genuine refined English red lead ...	128	5	0
Genuine powdered English litharge ...	128	5	0
Genuine English flake and ground flake litharge	130	15	0
Genuine refined English orange lead ...	140	5	0
Genuine refined English red lead in oil	154	5	0
Genuine English red lead Pt. BS 1011 Type I (1-gal. tins)	*2	15	6
English Red lead Pt. BS 1011 Type 2 (1-gal. tins)	*2	4	0

*No change.

CHAIN LINK FENCING

The Chain Link Fencing Association announce that in consequence of a reduction in the price of refined and electrolytic zinc, chain link fencing premiums were reduced by 1¼ points on February 5.

Newcastle-under-Lyme.—B.C. propose three-storey flats at Ryday-way, and are preparing detailed layout plans for 450 houses at Crackley Bank site, Chesterton.—B.C. approved plans for erection of welfare block at Brook-la. for West Midlands Gas Board.—Pauldens, Ltd., seek licence £31,000 for three-storey shop premises at Cheapside.—British Glues & Chemicals, Ltd., propose erection of building covering half acre at Waterloo Works.

Otley.—U.D.C. approved layout for 110 "Wimpey" type houses at part 2, section B, of Western-la. site.

Penrith.—Tenders to be invited by R.D.C. for erection of 14 houses at Little Salkeld. Surveyor is J. A. Sedgwick.

Seaton Valley (Northumberland).—U.D.C. S., T. W. Burgess, is to report on cost of providing bus station at Avenue Head, Seaton Delaval.

Shrewsbury.—T.C. propose new conveniences at the Square and Castle Gates, £17,500 est. cost.

Skelmersdale.—Brocks (Crystal Palace) Fireworks, Ltd., to erect additional buildings at White Moss Works (appeal allowed).

South Shields.—T.C. is to obtain new tenders for erection of block of 15 flats in Lawe-rd.—T.C. has been informed that it will cost £10,000 to convert No. 10, Oakleigh-gdns. into hostel. Architect is M. A. Mackenzie, 1, Eldon-sq., Newcastle-on-Tyne. —Preliminary draft plans for additions to high sch. for girls are to be submitted to M.O.E. by E.C.—Ministry has been asked to include the second instalment of new Marine and Technical College in 1954-55 building programme.

Southwell.—Coal Bd. Hsg. Assoc. propose 480 houses on various sites.

Stockton-on-Tees.—Durham C.C. are to convert St. Michael's Church Hall, Norton, into occupation centre.

Stockton-on-Tees.—T.C. has received loan sanction for £746,600 for erection of 540 houses at Roseworth. —Matkin & Hawkins, Barclays Bank-chbrs., Fawcett-st., Sunderland, are architects for five T.A. houses in South-rd., Norton.

Stourbridge.—St. Michael's P.C. Council, Rev. D. J. Copley, propose new church and hall at Norton estate.

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Sunderland.—Ed. Com. to convert Nissen huts at Castletown into sch, cost £11,000. Boro' A., H. C. Bishop, Grange House, Stockton-rd.

Sunderland.—Highways Com. approved layout plans for development of housing estate in Dene-la. and Shields-rd. area providing for erection of 700 houses. Developers are Lane, Fox & Co., Ltd., High Barnes Works.

Towcester.—R.D.C. to invite tenders for erection of 20 houses at Blisworth.

Tynemouth.—Chirton Social Club, Silkeys-la., are acquiring land for club extensions.—E. M. Lawson, Barras-bldgs., Newcastle, is architect for converting premises in Victoria-ter., Cullercoats, into amusement arcade for S. Powell.—Tenders are to be obtained by T.C. for 142 houses at Chirton Grange South, and also 150 "Ubicon" houses.—Hardy & Co., furnishers, Newcastle-on-Tyne, are to convert old baths and washhouses in Saville-st. into shops. —M.H. & L.G. has approved alterations to Central Library, North Shields, for T.C.

Upholland.—U.D.C. propose erection of four blocks of flats at Alma Hill estate. Surveyor, J. T. Iball.

Weaverham.—P.C. to obtain est. for erection of new village hall, £16,000 approx.

Wednesbury.—T.C. approved plans for 22 houses off Park Hill for R. W. Smith (Contractors), Ltd.

West Hartlepool.—T.C. seeks loan sanction for £346,551 for erection of 44 flats, 202 houses and 28 bungalows to be built by local builders, and £26,367 for the erection of 20 houses by direct labour.—T.C. proposes shops in vicinity of Easington-rd. and Raby-rd. roundabout.

Willenhall.—U.D.C. approved plans for 40 shops at Litchfield-rd.

TENDERS

* Denotes *accepted*.
† Denotes *provisionally accepted*.
‡ Denotes *recommended for acceptance*.
§ Denotes *accepted subject to modification*.
¶ Denotes *accepted by H.M. Government Departments*.

Ayrshire.—Plans prepared by The National Coal Board Architects for new canteen, pithead baths, and administrative buildings, to be erected at Auchinlock. *The Bryden Construction Co., Ltd., Glasgow

Biddulph.—34 dwellings at Park-la. estate, for U.D.C.: *Roberts & Butler, Ltd., Rupert-st., Biddulph, £43,127.

Bolton.—New occupational and physiotherapy unit at district general hospital: *Gilbert Collier & Son, 247, Ashworth-la., Bolton, £10,610.

Bootle.—Houses for T.C. at Cabbage Inn site: *W. B. Clare, Childwall Priory-rd., Childwall, £19,229 (14); *S. Byron, 9, Graburn-rd., Formby, £21,066 (21); *Holland & Hannen and Cubitts, Liverpool, £126,066 (94); *George Wimpey & Co., Ltd., London, £171,715 (120); *Lloyd & Cross, Ltd., Argyle-st., Birkenhead, £130,478 (94); *City Contractors, Ltd., 40, North John-st., Liverpool, £16,612 (12).

Brierley Hill.—91 houses at Swan-la. estate, for T.C.: *J. E. Garratt & Co., Ltd., Brierley Hill, £104,029.

Camberwell.—Erection of nine flats on housing site No. 56, Reedham-st., for B.C.: *James, Shackell & Co., Ltd., £16,508.

Chester.—11 shops, nine maisonettes, four flats and 11 garages at Blacon, for T.C.: *Thomas Warrington & Sons, Ltd., Park-dr., Hoole, £62,304.

Croydon.—406 houses at New Addington, for C.B. C. E. Boast, B.E.: *Wates, Ltd., Norbury, London, S.W.16, £593,599.

Docking.—Eight houses at Sutton estate, Burnham Market, for R.D.C. G. Gibson, Hsg. Officer, Council Offices:—
F. Smalls & Son, Ltd., Hunstanton, King's Lynn £13,218
*R. J. Finch & Co., Ltd., Station-rd., Docking, King's Lynn 11,330
R. H. Needham, Thornham 10,927

Doncaster.—Houses for T.C., Cantley estate. Stage 2, Phase 2: *J. S. Pott, 6, Church-la., Bessacarr, £46,579 (40); *R. H. Haigh & Son, £5,090 (4). Stage 3: *Wright & Kidger Bros., 2, Church-la., Bessacarr, £22,906 (18).

Epsom & Ewell.—30 flats at Avenue-rd., for B.C. N. Auty, B.E. & S.: *Wates, Ltd., Norbury, London, S.W.16, £50,546.

Gateshead.—Erection of the proposed Dryden-rd. gram. sch., for E.C. Plans by the Chief A., Municipal-bldgs., Gateshead. Consulting engineers for electrical, heating, and hot water services, R. W. Gregory & Partners, Pilgrim House, Newcastle-on-Tyne: *William Hall (Contractors), Ltd., Derwent Joinery Works, Gateshead, £196,835.

Glasgow.—Extensions, etc., at Horne's warehouse, Pitt-st. Frank Burnet, Boston, & Bell (F. & A.), architects, 180, Hope-st., Glasgow: *Donald MacIntyre & Son, Ltd., Glasgow.

Jarrow-on-Tyne.—Erection of 50 non-traditional houses on the Primrose housing estate, for T.C. Boro' E., H. W. T. Perkins: *Direct Labour, £1,257 each.

Kensington.—Erection of nine flats on the sites of 319-327, Ladbroke-gr., for B.C.: ‡Leslie & Co., Ltd., £19,184.

Kensington.—Erection of 66 flats forming the fourth phase of the Henry Dickens Court, for B.C.: ‡Holloway Bros. (London), Ltd., £120,574.

Lancaster.—Erection of new laundry at Royal Albert Hospital: *Wood & Brook, Ltd., King's-cres., Morecambe, £22,450.

Lincoln Corpn.—114 flats and maisonettes at Rise-

holm estate. City A., Stamp End: *Frank R. Eccleshare, Ltd., 468, High-st., Lincoln, £166,524.

Liverpool.—168 flats at Slade-st., for T.C.: *R. J. Barton & Sons, Ltd., Liverpool-rd., Southport.

¶London (Air Ministry).—New contracts to value of £500 or over for week ended February 7:—

Building work: William Sindall, Cambridge; Humphreys, Ltd., London, S.W.7; Gleghorn & Co., Ltd., Brampton, Cumberland; Walter G. Birch (Harrogate), Ltd., Harrogate, Yorks.; Beric, Ltd., Christchurch, Hants; F. Parkinson, Ltd., Blackpool.

General maintenance work: Walter Lawrence & Son, Ltd., Swaffham, Norfolk; William Sindall, Cambridge; Prospect (Eastbourne), Ltd., Eastbourne; Michael Thompson (Public Works Ctrs. and Engineers), Ltd., Carlisle; G. G. Middleton & Sons, Ltd., Worksop, Notts. *Resurfacing work*: Constable Hart & Co., Ltd., Richmond, Surrey. *Heating services*: La Mont Steam Generator, Ltd., London, W.1.

L.C.C.—Construction of 59 flats and 35 maisonettes, etc., at Arden estate extension, Shoreditch, and 75 flats, etc., at Whitmore estate extension, Shoreditch:—

J. & C. Bowyer, Ltd., Upper Norwood ...	£153,100
Galbraith Bros., Ltd., E.C.1	152,750
Patman & Fotheringham, Ltd., Islington...	151,323
Kirk & Kirk, Ltd., Wandsworth	147,500
A. T. Rowley (London), Ltd., Tottenham...	145,561
Gee, Walker & Slater, Ltd., Westminster ...	142,250
M. J. Gleeson (Contractors), Ltd., North Cheam	141,142
Rush & Tompkins, Ltd., Sidcup	140,464
C. P. Roberts & Co., Ltd., Holborn	136,950
*Tersons, Ltd., Finsbury	137,938

The architect's comparable estimate is £136,558.

Construction of 93 flats and other work on the Kender-st. site, Deptford:—

Tersons, Ltd., Finsbury	£232,485
Y. J. Lovell & Son, Ltd., Paddington ...	229,377
E. H. Smith (Croydon), Ltd., Croydon ...	224,288
Patman & Fotheringham, Ltd., Islington...	224,096
William Willett, Ltd., Westminster	222,500
Stewart & Partners, Ltd., St. Marylebone...	221,630
F. Troy & Co., Ltd., Southwark	218,197
Spiers, Ltd., Westminster	217,712
A. T. Rowley (London), Ltd., Tottenham...	217,193
Thomas & Edge, Ltd., Woolwich	216,756
Wilson Lovatt & Sons, Ltd., Westminster...	214,598
*Walter Lawrence & Son, Ltd., E.C.2 ...	210,789

The comparable estimate of the appointed architects, H. V. Ashley and Winton Newman, is £213,741.

Erection of Ring Cross cty. prim. sch. (Islington North):—

Patman & Fotheringham, Ltd., Islington ...	£44,350
Thomas Bates & Son, Ltd., Romford ...	42,700
J. & J. Dean, Ltd., Leyton	41,540
Yeomans & Partners, Ltd., Westminster ...	41,200
C. P. Roberts & Co., Ltd., Holborn	39,990
J. M. Hill & Sons, Ltd., Wembley	39,486
A. N. Coles (Contractors), Ltd., Paddington	38,011
*H. Fairweather & Co., Ltd., Muswell Hill...	37,573

The architect's comparable estimate is £37,890.

Construction on the Tor Gardens site, Kensington, of 24 flats, contract A, and 33 flats and maisonettes, contract B:—

Foster & Dicksee, Ltd., St. Marylebone ...	£72,400
F. & H. F. Higgs, Ltd., Lambeth	68,497
William Nicholson & Son (Leeds), Ltd., E.C.4	67,200
Patman & Fotheringham, Ltd., Islington ...	65,912
William Lacey (Hounslow), Ltd., Hounslow	65,861
Bernard Sunley & Sons, Ltd., Westminster...	64,801
Walter Llewellyn & Sons, Ltd., E.C.4 ...	64,613
H. Fairweather & Co., Ltd., Hornsey ...	62,781
Leslie & Co., Ltd., Kensington...	62,300
W. J. Marston & Son, Ltd., Fulham	61,562
*J. M. Hill & Sons, Ltd., Wembley	59,508

The architect's comparable estimate is £61,170.

Construction of 46 flats and other work on housing site No. 3 extension, Lansbury, Stepney and Poplar:—

Kirk & Kirk, Ltd., Wandsworth	£98,501
Harry Neal, Ltd., St. Marylebone	97,163
Trollope & Colls, Ltd., Westminster	94,331
Griggs & Son, Ltd., Westminster	92,477
Gee, Walker & Slater, Ltd., Westminster ...	90,915
C. Miskin & Sons, Ltd., St. Albans	90,170
Y. J. Lovell & Son, Ltd., Paddington ...	89,834
A. E. Symes, Ltd., Stratford	89,717
Tersons, Ltd., Finsbury	88,530
*Thomas & Edge, Ltd., Woolwich	86,400

The comparable estimate of the appointed architects, Bridgwater & Shepheard, is £88,835.

Construction of the northern section of Argyle estate, Wandsworth, comprising 154 flats and maisonettes, seven houses and other work:—

W. H. Gaze & Sons, Ltd., Kingston-upon-Thames	£379,482
Prestige & Co., Ltd., Westminster	374,983
A. T. Rowley (London), Ltd., Tottenham...	373,196
Stewart & Partners, Ltd., St. Marylebone...	370,210
Rowley Bros., Ltd., Tottenham	369,567
Tersons, Ltd., Finsbury	366,573
J. Jarvis & Sons, Ltd., Westminster ...	366,213
E. Clarke & Sons, Ltd., Addlestone	364,739
Galbraith Bros., Ltd., E.C.1	362,960
Gee, Walker & Slater, Ltd., Westminster ...	359,818
Kirk & Kirk, Ltd., Wandsworth	359,000
*M. J. Gleeson (Contractors), Ltd., North Cheam	357,996

The architect's comparable estimate is £367,134.

Construction on the Calcutta-st. site, Stepney, of 79 flats and maisonettes, etc., contract A, and 14 maisonettes, contract B:—

C. Miskin & Sons, Ltd., St. Albans ...	£163,200
Rush & Tompkins, Ltd., Sidcup	161,947
Charles S. Foster & Sons, Ltd., Loughton...	160,766
C. P. Roberts & Co., Ltd., Holborn	158,151
Thomas Bates & Son, Ltd., Harold Wood...	155,396
E. Clarke & Sons, Ltd., Addlestone ...	152,247
A. T. Rowley (London), Ltd., Tottenham...	151,394
Stewart & Partners, Ltd., St. Marylebone...	150,880
Rowley Bros., Ltd., Tottenham	149,070
Gee, Walker & Slater, Ltd., Westminster	146,721
*Tersons, Ltd., Finsbury	144,982

The architect's comparable estimate is £146,721.

Construction of 129 flats and 32 houses in 13 blocks, and other works on the Highbury Quadrant site, Islington:—

C. P. Roberts & Co., Ltd., Holborn...	£109,880
Allen Fairhead & Sons, Ltd., Enfield ...	108,412
Richard Costain, Ltd., Westminster ...	107,001
Thomas & Edge, Ltd., Woolwich	103,564
Patman & Fotheringham, Ltd., Islington	99,311
M. J. Gleeson (Contractors), Ltd., North Cheam	94,315
Kirk & Kirk, Ltd., Wandsworth	94,000
A. T. Rowley (London), Ltd., Tottenham...	93,168
Rush & Tompkins, Ltd., Sidcup	91,754
Lavender, McMillan, Ltd., Worcester Park	90,613
*Tersons, Ltd., Finsbury	86,348

The architect's comparable estimate is £86,164.

Construction of 184 flats, etc., at Ocean estate, Stepney:—

F. R. Hipperson & Son, Ltd., E.C.2 ...	£151,392
Thos. Bates & Son, Ltd., Harold Wood ...	143,100
M. J. Gleeson (Contractors), Ltd., North Cheam	132,406
E. H. Smith (Croydon), Ltd., Croydon ...	128,486
W. J. Simms, Sons & Cooke, Ltd., Westminster	116,980
Prestige & Co., Ltd., Westminster	112,823
Thomas & Edge, Ltd., Woolwich	111,993
Rowley Bros., Ltd., Tottenham	111,685
Kirk & Kirk, Ltd., Wandsworth	111,413
Wm. Shurmur & Sons, Ltd., Hackney ...	110,544
J. Garrett & Son, Ltd., Wandsworth ...	108,728
*Gee, Walker & Slater, Ltd., Westminster...	103,288

The architect's comparable estimate is £99,818.

Construction of 40 flats and other work at South Lambeth estate (Dorset-rd. area), Lambeth:—

Wilson Lovatt & Sons, Ltd., Westminster ...	£90,670
F. Troy & Co., Ltd., Southwark	86,637
The Bunting Construction Co., Ltd., Lambeth	84,599
Leslie & Co., Ltd., Kensington...	83,890
J. Jarvis & Sons, Ltd., Westminster ...	83,750
A. T. Rowley (London), Ltd., Tottenham ...	83,154
Bernard Sunley & Sons, Ltd., Westminster	82,959
Walter Llewellyn & Sons, Ltd., E.C.4 ...	82,385
Thomas & Edge, Ltd., Woolwich	80,928
*W. J. Marston & Son, Ltd., Fulham	80,850

The comparable estimate of the director of housing and valuer, is £85,389.

Construction of 12 blocks of flats and maisonettes, 17 houses and other works, contract A, on the Portsmouth-rd. site, Wandsworth:—

Wates, Ltd., Norbury	£1,098,001
M. J. Gleeson (Contractors), Ltd., North Cheam	1,049,503
Rush & Tompkins, Ltd., Sidcup	997,489
Tersons, Ltd., Finsbury	979,999
Richard Costain, Ltd., Westminster ...	967,854
*Kirk & Kirk, Ltd., Wandsworth	913,000

The architect's comparable estimate is £945,267.

Construction of blocks 4, 5 and 6 at China Walk estate extension, Lambeth:—

M. J. Gleeson (Contractors), Ltd., North Cheam	£124,206
A. T. Rowley (London), Ltd., Tottenham ...	118,697
Rowley Bros., Ltd., Tottenham	117,368
A. Roberts & Co., Ltd., Westminster ...	117,079
Wilson Lovatt & Sons, Ltd., Westminster	115,363
Rush & Tompkins, Ltd., Sidcup	114,983
Gee, Walker & Slater, Ltd., Westminster	113,537
Thomas & Edge, Ltd., Woolwich	110,565
The Unit Construction Co., Ltd., Feltham	110,373
Tersons, Ltd., Finsbury	109,986
W. J. Marston & Son, Ltd., Fulham... ...	108,874
*F. Troy & Co., Ltd., Southwark	105,986

The comparable estimate of the director of housing and valuer is £109,590.

Construction of Devons estate, Poplar, of 47 flats in the first part of a four- and five-storey block and the execution of other work:—

W. H. Gaze & Sons, Ltd., Kingston-upon-Thames	£79,724
C. Bryant & Son, Ltd., Westminster ...	77,526
C. F. Kearley, Ltd., Chiswick	76,918
Wm. Nicholson & Son (Leeds), Ltd., E.C.4	76,712
Allen Fairhead & Sons, Ltd., Enfield ...	75,908
A. T. Rowley (London), Ltd., Tottenham...	75,261
A. Roberts & Co., Ltd., Westminster ...	74,347
Rush & Tomkins, Ltd., Sidcup	73,592
Tersons, Ltd., Finsbury	72,834
*Rowley Bros., Ltd., Tottenham...	69,868

The comparable estimate of the director of housing and valuer is £69,631.

London (Metropolitan Police).—Contracts placed by Metropolitan Police:—

Canteen alterations at Old-st. Police Station: *Mansfield & Neil, Ltd., £1,590. Part internal decorations at Hendon Police College, Building 42: *R. Mansell, Ltd., £2,196. Erection of 30 flats at Canonbury estate, Islington, Allen Fairhead & Sons, Ltd., £66,288.

London (M.O.W.).—Contracts placed by M.O.W. during week ended January 31.

Buckinghamshire: P.O. Sorting Office and T.E., Princes Risborough, construction of external wall, Mayne and Son, Ltd., Station-st., Aylesbury. *Dumfries-shire*: Carnegie-st., Dumfries, erection of P.O. garage and workshop, Robison and Davidson, Ltd., St. Catherine's Gate, Dumfries. *Gloucestershire*: I.R.O., Prince-st., Bristol, adaptations, Stone and Co. (Bristol), Ltd., Redland-rd., Bristol. *Hertfordshire*: Ware Head, Post Office, Herts, adaptations, Crook Bros., Watton-rd., Ware, Herts.

Lancashire: M/Works Govt. Car Service, Watkinson-st., Liverpool, alterations and additions, E. G. Gibbs, Ltd., 35/37, Church-rd., Woolton, Liverpool; P.O., T.E. and S.O., St. Mary's-st., St. Helens, erection of extension, C. and G. L. Descer, Ltd., 2 and 4, Marathon-st, Liverpool 6. *Leicestershire*: Sorting Office and Telephone Exchange, Loughborough, extensions, Thos. Barker and Sons, 14, Swan-st., Loughborough. *Midlothian*: Silverburn, erection of T.R.S., J. Tait and Co., Ltd., John-st., Penicuik. *Yorkshire*: Head Post Office, Lendal, alterations, W. J. Kendall and Co., South-par., Pudsey.

¶London (War Dept.).—Works contracts placed by War Dept. during week ended January 31:—

Hertfordshire: Fencing, Boulton & Paul, Ltd., Norwich. *Brecknockshire*: Building work, T. F. Howells, Ltd., Caerphilly. *Shropshire*: Miscellaneous, Bertram E. Pugh & Son, Shrewsbury. *Perthshire*: Building work, Conoboy & O'Brien, Stirling. *Wiltshire*: Miscellaneous, Prescott Construction Co. (Southern), Ltd., Southampton. *Surrey*: Miscellaneous, R. J. Logan (Putney), Ltd., Putney, London, S.W. *Buckinghamshire*: Miscellaneous, Bitumen Industries, Ltd., Slough. *Berkshire*: Building work, John Knox (Bristol), Ltd., Bristol. *Hampshire*: Miscellaneous, G. W. Oliver & Son, Ltd., Basingstoke.

Mansfield.—50 houses at Ladybrook estate, for B.C.: *Adam Eastwood, Ltd., Burns-la., Warsop, £60,256.

Mitcham.—128 flats at Laburnam-rd., for B.C. Riley Schofield, B.E. & S.: *Wates, Ltd., Norbury, London, S.W.16, £271,912.

Morley.—32 houses at Bruntcliffe-la., for B.C. M. H. Brook, A.R.I.B.A., Housing Director, National Provincial Bank-chbrs., Queen-st.: *Lindley Bros., Commercial-st., Morley, £39,997.

Newcastle.—60 flats at Longbenton, for T.C.: *A. Anderson, Ltd., Stanmore-st., Newcastle-on-Tyne.

Newcastle-on-Tyne.—Construction of 72 two-bedroomed flats on Section "E" of the Blakelaw estate, for C.C. G. Kenyon, City A., 18, Cloth-market, Newcastle: *John Jackson & Sons, Corporation-st., Newcastle, £104,531.

Newcastle-on-Tyne.—Erection of proposed Rutherford gram. sch. (680 pupils) in West-rd., for C.C. City A., G. Kenyon, 18, Cloth-market, Newcastle: *Harry Kindred (Newcastle), Ltd., 371, West-rd., Newcastle, £214,843.

Notts.—Phase 1 of Mansfield College of Further Education, for C.C.: *Henry James, Ltd., Station-st., Mansfield, £119,995.

Otley.—24 flats at Fairfax-st., for U.D.C.: *O'Brien & Richmond, Ltd., Otley, £27,973.

Reading.—72 flats at the Bath-rd. housing estate, for B.C. C. H. A. Willett, L.R.I.B.A., Boro' A.: *Wates, Ltd., Norbury, London, S.W.16, £95,046.

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St. Pancras.—Erection of 115 flats at the Camden High-st. housing scheme, for B.C.:—
C. Miskin & Sons, Ltd. £217,676

Taylor Woodrow Construction, Ltd. 217,000
Richard Costain, Ltd. 216,597
A. T. Rowley (London), Ltd. 212,367
Tersons, Ltd. 211,969
Trollope & Colls, Ltd. 210,073
Holloway Bros. (London), Ltd. 205,457
Y. J. Lovell & Son, Ltd.... 203,816
Gee, Walker & Slater, Ltd. 203,557
William Moss & Sons, Ltd. 196,546
Sir Robert McAlpine & Sons 196,120
Harry Neal, Ltd. 194,398
‡Building Department 189,670

St. Pancras.—Erection of 72 dwellings at the Lamble-st. housing scheme, for B.C.:—
Tersons, Ltd. £159,831
Richard Costain, Ltd. 157,919
F. R. Hipperson & Son, Ltd. 157,196
Rowley Bros., Ltd. 156,324
Thomas & Edge, Ltd. 155,827
Wilson Lovatt & Sons, Ltd. 154,845
Holloway Bros. (London), Ltd. 153,948
William Moss & Sons, Ltd. 151,638
‡Sir Robert McAlpine & Sons 147,800

Scottish Special Housing Association, Ltd.—Contracts placed between December 23, 1952, to January 20, 1953:—

House Erection.

Inchmyre, Kelso (51 Traditional), Wm. Marjoribanks, St. Boswells, slater. Bellsmyre, Dumbarton (12 O'Sullivan), Scottish Gas Board, Dumbarton, gas services. Sighthill, Edinburgh (4 Experimental), Neuchatel Asphalte Co., Edinburgh, floor finish. Brora (12 Traditional), James Gray & Son, Inverness, slater and roughcast. Newtongrange (83 flats), Scottish Gas Board, Edinburgh, gas services. Pennyfern, Greenock (252 Lawrence and flats), S.W. Scotland Elect. Board, Glasgow, electricity services. Poltonhall (8 Dunedin), Scottish Gas Board, Edinburgh, gas services. Armadale (130 Traditional), Wm. Forsyth (Building Contractors), Ltd., Rosemount Work, Bathgate, joiner. Danderhall (64 Miller), Northern Sports Ground Const. Co., Edinburgh, fencing. Whitecraig, Midlothian (48 Traditional), Wm. McLean, South Fort-st., Leith, slater and roughcast.

Dovecroft, Kirkcudbright (18 Dunedin), Scottish Gas Board, Kilmarnock, supply and provision of service. Newtongrange (117 No-fines), Scottish Gas Board, Edinburgh, supply and provision of service. Bellsmyre, Dumbarton (12 O'Sullivan), S.W. Scotland Elect. Board, Glasgow, electricity services. Pencuik (50 SSHA/Thomson), N. Thomson, Croft-st., Dalkeith, all trades. Auchenback, Barrhead (104 Miller), A. M. Tweedie & Co., Ltd., Glasgow, fencing.

Arden, Glasgow (1,188 No-fines), Scottish Gas Board, Drumsheugh-gdns., Edinburgh, gas services; S.W. Scotland Elect. Board, Hamilton, electricity services. Valley-gdns., Kirkcaldy (50 No-fines), Weir Housing Corporation, Ltd., Coatbridge, all trades. Mains of Fintry, Dundee (54 Dunedin), W. G. Walker & Sons (Edinburgh), Ltd., Edinburgh, flooring. Netherthird, Cumnock, A. M. Tweedie & Co., Ltd., Glasgow, fencing.

Borestone, Stirling (26 Traditional), Williamson Bros., Kirkintilloch, plaster. Falside, Bathgate (2 Unitroy, 24 Dunedin), W. G. Walker & Sons (Edinburgh), Ltd., Edinburgh, flooring. Bellsmyre, Dumbarton (234 No-fines), Geo. Wimpey & Co., Ltd., Edinburgh, all trades. West End, Fraserburgh (32 Miller, 68 Traditional), A. M. Tweedie & Co., Ltd., Glasgow, fencing. Sighthill, Edinburgh (18 Space-saving flats), S.E. Scotland Elect. Board, Edinburgh, electricity services.

Work undertaken by Direct Labour Organisation.—Currie, Midlothian (78 Dunedin), road and footpath surfacing. Park Farm, Port Glasgow (102 Lawrence), site servicing. Muirhouse, Edinburgh (16 Traditional), site servicing. Pennyfern, Greenock, construction of access road and reconstruction of bridge. Poltonhall (108 Cruden), site servicing. Whiteside, West Lothian (72 Cruden), site servicing.

Contracts by Direct Labour Organisation for Local Authorities, etc.—Park Farm, Port Glasgow (60 Lawrence), site servicing.

Tamworth.—10 bungalows at Gillway housing estate, for B.C. H. F. Bruce Smith, B.E. & S.: *Wates, Ltd., Norbury, London, S.W.16, £10,229.

Tipton.—Four flats at Upper Church-la. estate, for B.C.: *Direct Labour.

West Bromwich.—24 flats and 16 houses at Yew Tree Farm housing estate, for B.C. J. G. Jefferson, M.Inst.C.E., A.M.T.P.I., Boro' S.: *Wates, Ltd., Norbury, London, S.W.16, £62,138.

West Riding.—Two additional classrooms at Whitcliffe Mount gram. sch., for C.C.: *Direct Labour.

Whitehaven.—Erection of a small hall at Lowther-st., for T.C.: *John Laing & Son, Ltd.

Whitley Bay.—Erection of 14 houses in Cauldwell-la., for U.D.C. E. Roberts, S.: *W. A. Cruickshanks, 105, Closefield-gr., Whitley Bay, £22,857.

Wimbledon.—Erection of 78 flats, Gap-rd., housing scheme, for Corporation. *Woodcock Bros. (Wimbledon), Ltd., £109,321.

Wimbledon.—Erection of 12 houses (higher income group), Lake-rd. housing scheme, for Corporation. *Pinsent Bros., Ltd., £29,936.

Wimbledon.—Erection of 32 houses, West-side housing estate, for Corporation. *M. Howard (Mitcham), Ltd., £56,616.

Worksop.—Houses at Kingsway estate, for T.C.: *G. G. Middleton, £19,221 (16); *J. H. & W. E. Hett, £20,844 (18); *J. J. & A. R. Jackson, £19,375 (16); *Hewitt & Maughan, £18,465 (16); *Morris Oldfield & Co., £29,263 (24 at Waverley-pl.).

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